AMERICAN

Journal of Mining,

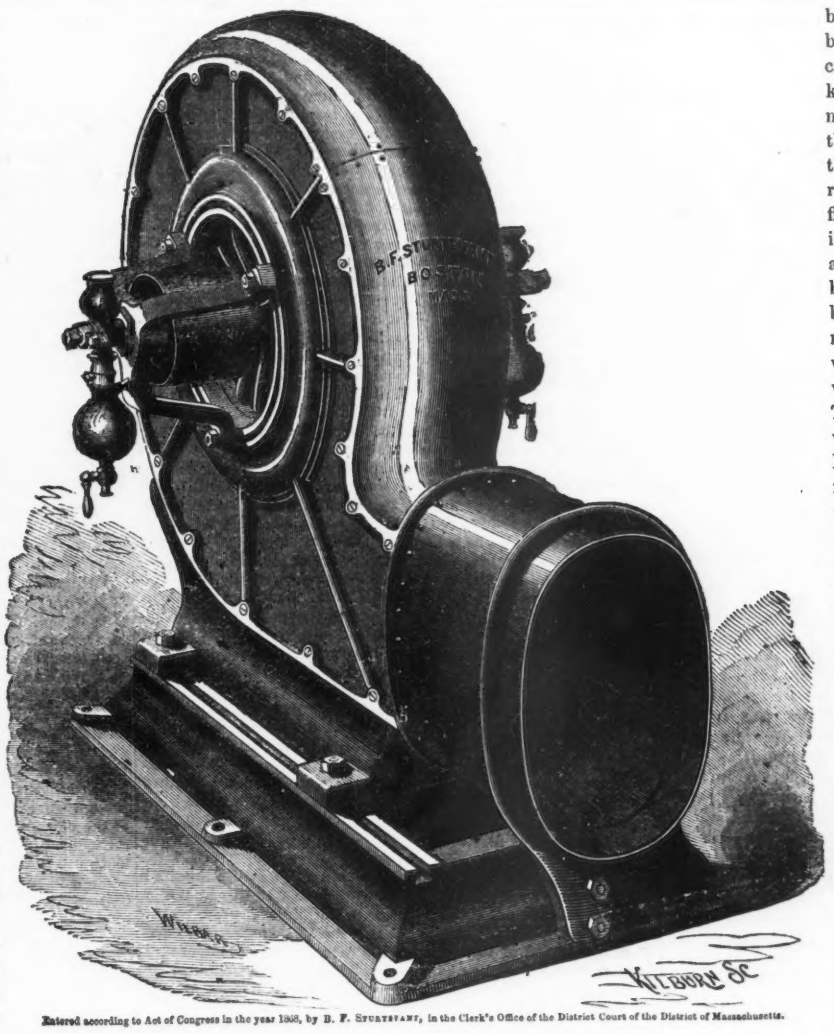
Engineering, Geology, Mineralogy, Metallurgy, Chemistry, etc.

VOLUME VII—Number 7. New Series. | NEW YORK, FEBRUARY 13, 1869. | $4 A Year in Advance. Single Copies Ten Cents

IMPROVED BLOWER FOR CUPALO FURNACES, STEAM BOILERS, FORGES, STEAMSHIPS, IRON-ROLIING MILLS, VENTILATION, ETC.

In the construction of Blowers for the purposes above enumerated, there are several essential requisites which must be fully carried out in order to ensure permanent success and give entire satisfaction. Durability is an important feature, for delays caused by repairs are frequently more expensive than the original cost of the Blower. Lubrication is another important point, for a high rate of speed is required, and unless the journal-bearing are kept well oiled, they will soon become worn, and require to be replaced by new ones. Provision should also be made for the ready removal of the journal-boxes for the insertion of new ones.

These features, in connection with others equally important, are, it is believed, fully attained in the Sturtevant Blower. The accompanying engravings represent the device—Fig. 1 being a perspective view, Fig. 2 a transverse vertical section, and Fig. 3 an enlarged section of one part, the plane of section coinciding with that of Figure 2. The case of the Blower is cast and formed with ribs at each side, as shown in Fig. 1, for the purpose of enabling it to sustain the pressure of wind within, and thereby prevent an undue expansion and consequent leakage. The style and form of the case are such as to admit of a free discharge of the wind from the blast wheel, and obtain the largest possible volume of wind from a wheel of a given size. A bed-piece is not often required with these Blowers. Only when double pulleys and belts are used for running at a very high rate of speed for melting iron with great rapidity. In Figures 2 and 3, the lubricating apparatus is clearly shown. An inside tubular bearing is surrounded by an external case, and this bearing is held in place by two cap screws at the end, by means of which it can be easily removed and a spare one put in its place. This might be required to be done after some years' use, and duplicate bearings accompany each Blower. The self-oiling apparatus fills the globular chamber in the middle of the outside case, and extends through four slots against the shaft—the oil fed through the wick in the tube in the oil cup, at the end of the bearing, through the centre of the loose piece and plug at the end of the shaft, not only lubricates those parts and the shaft, but serves to keep the stuffiing in the globular chamber and slots in the tubular bearing well saturated with oil, which, in case the supply should be neglected, would keep the bearings well oiled for several months. The waste oil runs down through the tube into the oil-chamber, and may be therefore saved. The material used in the running parts of these Blowers is of the finest kind. The shaft is of the first quality of cast steel; the boxes and self-oiling arrangement of the best composition: the blast-wheel is of bronze metal and sheet brass, the above being the strongest and most durable materials known for such work. How do these Blowers compare with the Patent Rotary or Piston Blowers? This is an important inquiry, but it can be very easily answered. Piston Blowers, or Blast Engines, pump the air into the furnace, which may be properly called Positive Blast; but they are very expensive and complicated in their construction, and are difficult and expensive machines to repair when out of order. They seldom give more than one pound pressure on the cupola, whereas the double pressure fan of the Sturtevant construction will give one pound and a half, which is sufficient for a cupola seven feet in diameter. Rotary Blowers compare with Piston Blowers the same as Rotary Pumps compare with Plunger Pumps, and Rotary Steam Engines with the common Piston Engine. In cupola furnaces they are but little better than common Fan Blowers, and very much inferior to Piston Blowers. There is much wear and friction attending their operation, and consequently considerable power is required to drive them. They are noisy, very complicated, liable to get out of repair, and leak wind badly—objections which are fully obviated by the Sturtevant Blower. The "Sturtevant Blower" is manufactured by by B. F. STURTEVANT, at Boston, Mass., to whom all letters may be addressed.



Entered according to Act of Congress in the year 1868, by B. F. STURTEVANT, in the Clerk's Office of the District Court of the District of Massachusetts.

STURTEVANT'S IMPROVED BLOWER.

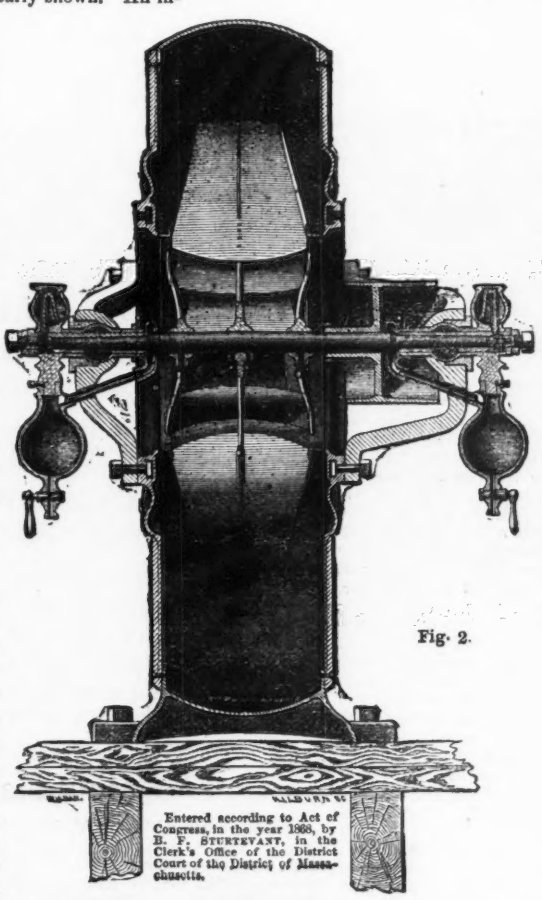


Fig. 2.

Entered according to Act of Congress, in the year 1868, by B. F. STURTEVANT, in the Clerk's Office of the District Court of the District of Massachusetts.

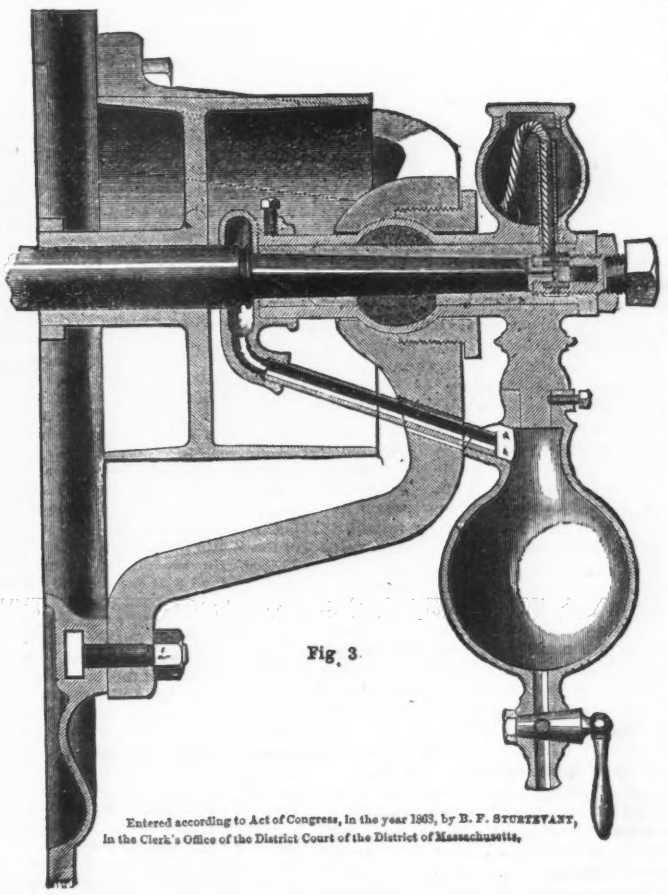


Fig. 3.

Entered according to Act of Congress, in the year 1868, by B. F. STURTEVANT, in the Clerk's Office of the District Court of the District of Massachusetts.

—:o:—

Welding Powder.

A powder of the following composition, recently patented in Belgium, is said to be very useful for welding iron and steel together. It consists of one thousand parts of iron filings five hundred parts of borax, fifty parts of balsam of copaiva or other resinous oil, with 75 parts of sal ammoniac. These ingredients are well mixed together, heated and pulverized.

The process of welding is much the same as usual. The surfaces to be welded are powdered with the composition, and then

brought to a cherry red heat, at which the powder melts, when the portions to be united are taken from the fire and joined. If the pieces to be welded are too large to be both introduced at the same time into the forge, one can be first heated with the welding powder to a cherry red heat, and the other afterwards to a white heat, after which the welding may be effected. Another composition for the same object consists of fifteen parts of borax, two parts of sal ammoniac and two parts of cyanide of potassium. These constituents are dissolved in water, and the water itself afterwards evaporated at a low temperature.

Diamonds and Gold at the Cape Colony.

Some time ago we gave some extracts concerning the discovery of gold and diamonds in Africa. It is important to call attention, therefore, to the following letter from Mr. H. Emanuel, in which he establishes the worthlessness of the report, which appears to have been orginated by designing and selfish colonists for their own prospective benefit:—"As the report of diamonds having been found at the Cape, has excited considerable interest, and as it is possible that some unfortunate persons may thereby be induced to embark on a fruitless errand, I think it advisable to make public some facts with which I have become acquainted in connection with this subject. Some months ago my attention was called to the report of diamonds having been discovered in or near to the Orange river, and I was shown a diamond of fair quality (resembling the Indian rough material) said to have been found thereabouts. Being naturally desirous of discovering or developing a new source of supply to supplement the gradually decreasing yield of the Brazilian and Indian mines, I commissioned Mr. J. R. Gregory, a gentlemen well-known in geological and mineralogical circles, thoroughly to explore the districts where diamonds were said to have been found. Mr. Gregory has just returned, and reports having carefully visited the Orange, Vaal, Buffalo, and Fish rivers, as well as the adjacent country as far as 120 miles into Griqua Land, and has failed to find anywhere those geological and mineralogical signs which have hitherto been invariably seen wherever diamonds have been found, and nowhere does the formation of the country warrant the inference that diamonds could exist there. The whole of the territory visited is of volcanic origin; in only one instance, at George, on the extreme south coast, did Mr. Gregory meet with a stratum of granite and mica slate; this was coarse and friable, and contained only crystals of black tourmaline, which crumbled on being taken from the quartz. The "Conglomerate bed," alluded to by Professor Tennant at the British Association, described by him as consisting of sand with quartz pebbles, was in reality a composition of lime with agate and calcedony pebbles. The solitary specimens of rough diamond as yet produced have been brought to light through the instrumentality of a Dutch farmer, and two of these were said to have been found on separate farms of his, twenty miles apart. Mr. Gregory, who is a perfectly competent authority, after exploring all the places said to be "diamondiferous," and over 2,000 miles of other Cape territory, is of opinion that no diamonds have nor ever will be found in the Cape Colony—saving such as are there deposited for a purpose; and he fully believes that all the reports that have been so industriously circulated on this subject and about gold fields (of which more hereafter) owe their origin solely to interested parties who aim at enhancing the price of land and attracting a flow of immigration. The degree of competency of the local geological and minerlogical authorities is indicated by the fact of their having recommended digging to a depth of 120 feet through a bed of lignite of tertiary formation in the hope of finding true coal beneath, and this recommendation was actually carried into effect at Joostenberg, a place about forty miles from Cape Town. One of the Cape mineralogical luminaries, in one of his letters to the *Cape Argus*, describes emery as a compound of iron and quartz, though any "tyro" knows it to be simply impure corundum. With such guides to knowledge it is not surprising that inexperienced persons, and even Government officials, have been deceived. For the information of the public I may as well state that the diamond has hitherto been found only among rocks of the very earliest period, such as granite, mica, slate, and other metamorphic rocks, and they are usually found accompanied by itakolumite, titaniferous iron-sands, oxydes of tin, zircons, etc.; as yet there has been no single instance of their apppearing in rock of a volcanic origin. As regards the so-called "gold-fields," Mr. Gregory, although unable to visit the district, is of opinion, from what he has seen and learnt, that they are as equally a myth as the "diamond mines;" and though gold may, and doubtless does, exist there, as it does indeed in most parts of the world, England included, yet it is not in sufficient quantities to pay to work, nor to warrant the name of "gold-fields," so pompously applied to them. Very slight dependence should be placed in the Cape newspapers' sensational paragraphs. As an instance of their reliability, Mr. Gregory relates that, while at Hope Town an explorer came down from the "gold country" and exhibited a specimen of "gold-bearing quartz," which on examination proved to be quartz with goldleaf artistically glued on sufficiently well to deceive an unpractised eye. Mr. Gregory exposed the imposture in the presence of several witnesses, yet the very next number of the *Colesburg Advertiser* said that "the explorer in question had arrived from Bamangwato, and has brought down some specimens of gold, which Mr. Gregory, the mineralogist, had pronounced to be very rich." These so-termed "diamond and gold discoveries" have been extensively puffed, and unless the true facts are made apparent, I fear that many adventurous persons might be induced to risk their all in emigrating to a colony where everything is very dear and subsistence hardly to be earned; and I fancy they would derive small comfort in their ruin from the consideration that their emigrating might eventually lower the price of labor and thereby benefit the established colonists."—*The London Mechanic, Nov.* 28. '68.

Mining Summary.

GOLD AND SILVER.

Nevada.

WHITE PINE—THE WONDER OF THE WORLD.

Under this caption the San Francisco *Alta California* comments as follows:—"Although only about three months have elapsed since the first noteworthy shipment of bullion from White Pine reached this city, that district has already become one of the most populous in the great inland basin of the continent. The number of men in the vicinity is 3,000 or more, and of these 1,000 are engaged in taking out ore, the quantity extracted daily being about 300 tons, and average value is estimated by one excellent authority at $500 per ton, and by another at $200. A man who worked in a custom mill informed us that he had worked ore from thirty-five different mines, and only two lots out of the thirty-five yielded less than $150 per ton. At $200, the yield of a year, counting 300 working days, would be $15,000,000—that is if the supply of ore should not be exhausted. A much greater quantity could be taken out now, but there are not mills enough to reduce what is being extracted, and many of the claim holders make great sacrifices to raise the cash for necessary expenses, and it would be a serious loss to them to pay miners for work from which no income could be derived before next summer. If the deposits are as extensive as they now appear to be, the yield of the district in 1869 will astonish the world. The Eberhardt Company, who own the typical mine of the district, have worked 700 tons, which assayed $1,000 per ton, and yielded $850 in the mill—a total production of $595,000 from that one mine alone. They have on the dump and at the mill 600 tons of ore, and they have 500 tons more 'in sight' as rich as that heretofore reduced. Counting the ore reduced, that extracted and that in sight, the Eberhardt is certain to produce at least $1,500,000. They have, however, not gone down more than forty feet, and they have not reached either the bottom or either the eastern or western limit of the deposit. A drift of 184 feet, cut with the meridian, has struck the walls on each side. The Keystone mine, which ranks next to the Eberhardt, has worked 350 tons, averaging $700, and has extracted 1,000 tons more which average $400, making the gross value of the ore produced so far $645,000. The Robert Emmet has taken out 100 tons and worked 61, of which 20, first-class, assayed $1,215 per tun; and 41 tons of second-class assayed $485 and yielded $341 net. The Stonewall has taken out 200 tons, and reduced 60, which yielded $500 per ton. The South Aurora has out 500 tons that will average at least $150 per ton; the North Aurora is taking out 20 tons per day, worth $150. The Eclipse, a claim that has attracted little attention, comparatively, has been sold to J. D. Winters, the superintendent of the Yellow Jacket mine, for $35,000. These are only a few out of many. An area two miles wide and six miles long appears to be underlaid by an argentiferous deposit similar to that in the Eberhardt. More than a hundred shafts have been sunk, and nearly all have found the ore within fifty feet, most of them within thirty feet of the surface. Mineral deposits in limestone, which is the bed-rock at White Pine, are ordinarily of small extent and soon exhausted; but the newly-discovered deposit is certainly an exception in regard to its extent. The silver mines of Chanarcillo, in Chili, are in limestone, and they have been worked steadily for thirty-six years, and have produced $60,000,000. There, as at White Pine, the lodes near the surface contained large quantities of chloride of silver, which could be mined and reduced at very little expense. Nearly a hundred years ago, a deposit similar in many respects to that at White Pine, was found an Catorce, Mexico, in the Zavala mine, which yielded $7,000,000. Ward says the ore was 'a loose metalliferous substance, so completely impregnated with particles of silver that it was bought up at once by the *rescatadores* [amalgamators] at the price of one dollar for the pound.' The amalgamators, who were and still are distinct from the mine owners, in most of the mining districts of Mexico, seldom paid half as much as the ore would yield, so it is fair to presume that the Zavala ore would assay $3,000 or $4,000 per ton, and that is quite up to the average of White Pine. We do not find in any of our books of reference a description of the geological formation at Catorce, but it is said that the richest ores were found in vaults (*bovedas*) or caves, which are common in limestone and rare in other formations. At Guarisamey, in Durango, there was another vault filled with the rich dirt-like ore, which yielded a rich profit to Zambrano, one of the most famous miners in Mexico. In twenty-five years he took out $55,000,000. The records show that he paid $11,000,000 tax to the King. The chloride ores at White Pine may not last so long as did those of Chanarcillo and Catorce, but if the testimony of a number of witnesses of good repute is to be accepted, they will certainly prove the wonder of the world for a year or two, and give a great stimulus to business of all kinds on the Pacific slope. Many, however, who abandon their present occupations to go to the new diggings will lose far more than they gain."... In the White Pine *News*, of Jan. 16, we find the following items:—"The owners of the principal mines on Chloride Flat, being unable to get ore crushed, have gone to work sinking their shafts deeper in seach of new deposits of ore beneath the first. It is the general impression that a succession of ore deposits or veins, separated by intervening strata of limestone, will be found in sinking shafts. So far as the developments have been carried in that direction they tend to confirm this theory. Many new shafts have been started lately for the purpose of striking this second vein, the upper one being previously claimed and worked by others, and new locations are made daily for that purpose. The shafts are multiplying so rapidly in some parts of the flat as to leave scarcely room to dump the dirt taken from them. During the last thirty days, the Monte Christo mill, on the west side of the White Pine range, has worked 135 tons of ore, producing $97,800. In the lot, 53 1-2 tons averaged $1,455 50 per ton; 53 tons averaged $251 per ton; 13 1-2 tons averaged $326 per ton, and five tons averaged $383 per per ton....The Belmont shaft, near the Applegarth cabin, and Emmet mine on Chlorine Flat, have struck a good quality of ore at a depth of about 25 feet. Another strike has been made on the flat next north of Chloride Flat. The value of this last strike we have not learned, but learn that it was the cause of some excitement and the recording of several new locations.....The following figures in regard to altitudes, are furnished the *News* by Major E. A. Sherman, and were taken by him with an Aneroid barometer on the morning of January 15: The height of Silver Springs above the sea is 7,610 feet; that of the Eberhardt mine 8,825 feet, and of the *News* office in Treasure City 9,135. The summit of Central Peak is 9,268, and Telegraph Peak 9,254....D. William Douthett intends to commence the publication of a paper, either in this place or Hamilton, as soon as the materials and printers now on the way here arrive. We have heard that a paper is soon to be published at Silver Springs....The *News* thinks that hoisting machinery on Treasure Hill may be driven by means of compressed air, the air being compressed by steam machinery at any point where water and fuel are convenient, and conducted in pipes up the mountain in the same manner as gas is supplied to cities.

Washoe.—The *Enterprise* says of the Occidental mine.—"The total yield of the Occidental mine for December was $38,239 62. Large as is this yield for an 'outside' mine, it is much less than it would have been but for the bad state of the roads, which prevented hauling to such an extent that the mills—Birdsall & Co's., at Dayton, and Weston's, on Gold Canyon—could only be kept running about two-thirds of the time. The mine is looking exceedingly well, and everything is progressing satisfactorily both above and below."

Colorado.

GEORGETOWN, COL., January 28, 1869.

EDITOR AMERICAN JOURNAL OF MINING:

We enclose you a report of the general business of our works from the time of our taking possession of the same up to the first of the present year, thinking this will prove interesting to the many readers of your valuable paper, as showing the development of our mines, and the increasing means for reducing their product:

	No. ozs.	Coin value.
May	2,598.45	$2,708 70
June	4,314.99	3,237 55
July	3,742.12	4,110 15
August	7,406.44	8,791 92
September	4,440.68	4,960 66
October	5,094.55	5,180 34
November	4,214.80	4,104 22
December	6,284.35	6,057 67
Total	38,046.28	$39,101 15

The above is the amount of bullion produced, and the coin value of the same, which is the work of 145 days, from the 21st of May to January 1st. During that time the amount of ore reduced was as follows: ore, 355,269 tons; dust, 921,070 tons—making a total of 447,339 tons; average yield of bullion was 81.79 per cent. of the fire assay; average yield in iron, according to the above figuring, is about $110 39 per ton, coin; of ore worked, the highest assay was of Munsel ore, being $308 68 per ton, the lowest being one ton of four ounces. These were furnished by the different lodes, the following amount of ore yielding as follows:

	Tons. lbs.	Assay ozs.	Coin.
Equator	113. 100	122.40	158.26
Lilly	34.1800	123.	159.04
Cleft	33. 700		
Snowdrift	24.	81. 3	105.12
Buckeye	7.1300	77.25	99.89
Astor	28.	120.	165.16
Magnet	6. 150	214.	276.70
Sonora	10. 760	48. 2	61.26
Baker	24. 700	44.	56.89
Sundry Lodes	73.0759		
Total	355.0269		

Of the silver produced, $10,365 39 was delivered to the owners of the ore; the balance, $28,735 76, was shipped to Messrs. H. AMY & Co., 21 Nassau street, New York, to be disposed of on our account.

The works are established according to the most successful principles used in Frieberg, Germany, substituting for the furnace used there for roasting William, Bruckner's patent revolving cylinder furnace. After roasting and chloridizing, the ore is treated by amalgamation in Frieberg barrels. The works were got up first as mere test works, but by improvements made by us last summer, the capacity of the furnace was increased from 1 3-4 to 2 tons per day to 3 1-2 to 4 tons. These improvements proved successful, and we were justified to double the capacity of the works by erecting another cylinder, which is now ready for work. The supply of ore, however, will probably not allow us to use the same before spring, the mines not being developed enough to furnish now 7 to 8 tons of ore per day, although we diminished the mill fees in proportion to the increased capacity of our works.

HUEPEDEN, WOLTERS & CO.,
per MCMURTREE.

The Smith & Parmelee Gold company has changed its direction in New York, and is about changing its Superintendent at the mine. The Central City *Herald* says:—"Mr. Wells, the successor of Mr. Belden, is here. In a few days he will assume full charge, and Mr. Belden will resign. Mr. Wells is a practical business man of large experience, and Mr. Belden thinks peculiarly qualified for the duties which he will assume, and has no doubt he will make a success of the business; but whether he can meet the expectations of the new Board of Directors he has more doubt."....The same paper says:—"The furnace being erected in Gilson gulch, for the Franklin Silver Mining Co. is now drying out, and will be placed in actual operation next week. This furnace is a most curious affair, being a combination of the reverbatory and cupalo stack, with an oven for roasting. It has been erected under the supervision of the inventor and patentee, Mr. Wm. Quann, of Philadelphia. If it will do one-half claimed for it, by Mr. Quann, it will create a complete revolution in the method of treating our ores."....The Pierce mine is now in excellent working order. The owners, John W. Remine & Company, have spent the greater part of the past two months in moving the old whim and replacing it by a good engine. This required new buildings, new hoisting apparatus, and a great many other expensive incidentals, too numerous to mention. All this has been done at an expense of nineteen thousand dollars. The editor of the *Herald* in a report of a recent visit to the mine says:—"Every thing in the mine is fixed in the most substantial manner—There is a partition in the middle of the shaft, which helps to create a draft, giving the men a constant supply of fresh air. When a shot is fired the smoke almost instantly disappears. At the bottom of the shaft a drift is now being started, which will run east 100 feet along the vein. The shaft in the meantime will be driven 50 feet deeper in order to make a sink for the water, and at a point mid-way to the bottom, another drift will be driven west to the end of the property. They have a body of ore 60 feet deep—that is the ore above the drift is all good. At the point where we examined it, it was 40 inches wide. That taken out in sinking the shaft returned 11 ounces of gold per cord. It yields by assay $150 per ton, or about $1,500 per cord. To first class ore will be sold to Professor Hill—the first load being taken down to-day. The second class will be crushed in a stamp mill. Within the next sixty days the owners of the mine expect to get all their money back. It is these private enterprises which have made Gilpin county prosperous. Take away the product of our mines which have been worked by private parties during the past year, and the amount of gold and silver will be too small to talk about. With three or four exceptions, our companies have done nothing."

Montana.

Prof. Swallow's mill is reported to be now operating on quartz from the Nevins' lode with good results. "Each succeeding run, from the time the mill commenced operations, has been an improvement on the runs formerly made."....Through a private letter we learn that the Thomas company at Cable City have struck a "large body of very rich quartz" in their shaft on the Thomas lode. This is not only encouraging to the Thomas compa-

ny; but to the quartz interests of Deer Lodge county generally. The Thomas company have met with considerable adversity since they commenced operations at Cable City; but now the general belief prevails that the road out of embarassing circumstances to fortune is opened up for them.... The Deer Lodge *Independent* has the following additional mining items:—"The St. Louis and Montana Mining Company, at Philipsburg, are taking out very rich ore from the Hope lode. The solid ore in vein is about eight feet wide, and the ore is of as good or a better character than any that has been taken from the lode heretofore. There are several hundred tons of rich ore piled up on the surface of the ground ready to be hauled to the mill. The James Stuart mill will commence crushing ore about the first of March, and in a short time afterwards the stockholders' ideas about the mineral resources of this Territory will be brightened by the shipment to St. Louis of numerous and weighty silver bricks. John Ullery & Co., about half a mile east of the mill, have found, at the depth of eighty feet from the surface, a large vein of very rich ore. They are now running drifts to find the direction and extent of the vein. Perseverence and muscle must eventually succeed. They have been two years prospecting in the District, and have at last found what will make them a home stake. There has been but very little snow, either in the valley or at the mines; the climate is similar to that of Deer Lode valley. White Pine and Kootenai are the ruling topics of conversation at Philipsburg. To "ye honest miner" distance lends enchantment to the prospect of making a "pile," consequently the further a place is off the greater the stampede to it. On the Boulder Fork of Flint Creek, about six miles above Buzz Cavin's Hotel, there is a number of miners at work developing several large lodes of argentiferous galena ore. Specimens from them are very rich in silver. There is a natural advantage of plenty of timber and good water power in the immediate vicinity of the lodes. They undoubtedly will become very valuable when the attention of capital is directed to them.

Maine.

A correspondent of the Portland *Press*, thus speaks of the alleged discovery of gold on the Vosmus farm in Auburn:—"The Vosmus farm has passed into the hands of a company whose members are A. Williams, of Embdem, H. M. Bradford, William Vosmus, and Nelson H. Monroe, of Auburn. They purpose having the thing at once thoroughly tested; if it proves all right they will proceed to work. A few days ago I saw sundry specimens which, it is said, came from the Vosmus farm; and I have the authority of an eminent geologist for saying that there was gold in two or three of them, and that if they or any of them came from the Vosmus farm, then the owners have a fortune in their hands. But the said geologist was very skeptical as to whether the gold specimens came from the Vosmus farm, though he says that Maine lies in one of the great gold ranges of the continent, and he knows no reason why gold should not be found here, only that it has not been. Mr. Vosmus claims to had have the rock assayed, with a yield of $1,900 of gold, and $208 of silver to the ton. Mr. Munroe, one of the recent purchasers, has sent fragments of the ledge obtained by himself, to Professor Bracket of Brunswick, for analysis. Old miners declare that the region looks decidedly like a gold bearing one. It is hilly, rocky, and miserable enough to bear gold, for it can bear nothing else. On the Vosmus farm about one acre of the ledge crops out; the rest is covered with a few inches of soil."

New Hampshire.

MANCHESTER, N. H., Feb. 4, 1869.

EDITOR AMERICAN JOURNAL OF MINING:

SIR:—Free gold has just been discovered in the zinc blende at Warren, N. H. The associated minerals are copper and iron pyrites, zinc blende in quartz and micaceous schist. An account of the reopening of the mines was published in the JOURNAL OF MINING last fall. The mine is worked for the zinc blende, this ore being shipped to Pennsylvania for reduction. A night gang has just been put on. The people hereabouts are greatly excited. J. A. R.

Canada.

The Madoc *Mercury* Feb. 6, says:—"Mr. J. H. Dunstan, the Manager of the Richardson Mine, has taken another ingot of gold to Belleville. Its weight was 19 oz. 1 dwt., and its value $381. It was the proceeds of the last crushing—70 tons of rock, containing chiefly sulphurets, from the newly opened vein. The yield, it will be seen, is something over $5 per ton; the cost of crushing amounting to about $1.70 per ton."

Scientific Meetings.

SOCIETY FOR THE ADVANCEMENT OF SCIENCE AND ART.

A meeting of this society was held Monday evening, 8th inst. A communication from Mr. ALEXANDER J. DAVIS was read, tendering the society the use of a library, reported as worth $10,000, and comprising a choice selection of architectural works. A ventilating apparatus was exhibited by Dr. GRISCOM, containing sections for the reception of charcoal, sponge, lime, etc. The charcoal, he said, would act upon the carbonic acid gas; the sponge upon undue moisture; the lime and other chemicals would counteract other deleterious elements, in their passage through the ventilator. This invention is styled the Lesperence Patent Ventilator.

VAPOR STOVE.

Dr. GRISCOM then called attention to a stove which had recently come under his observation, which seemed admirably adapted to the consumption of that waste element of refined petroleum—low gravity of naphtha. To demonstrate its safety, a lighted match was applied to the reservoir that supplied the stove. This may be done with impunity to all the utensils furnished by the company for holding this fuel. The danger of explosion being obviated by the well-known application to Miner's lamps.

Bread, apples, and potatoes were baked in the oven, which attains a baking-heat in one or two minutes. A steak was also broiled. Many of the audience present esteemed this stove, all recognizing its cooking capacity.

Dr. GRISCOM had had one of them in his house, performing all the cooking "in the happiest manner" for two weeks. Matters of interest will be discussed at the next meeting, including an apparatus for ventilating by a Mr. THOME.

[FROM THE MAUFACTURER AND BUILDER.]

The Bessemer Process and its Late Improvements.

One of the most salient features of the industry of the present day is the marked advance in the manufacture of steel, and its progressive substitution for iron in cases where it is desirable to combine strength with lightness; and, hence, the inexpensive production of good steel has become an important problem, to the solution of which the best minds in the iron business have already directed considerable attention. The Bessemer process is, of course, the great feature of the day in this department; but the old crucible cast steel, by virtue of its uniformity, still holds its place in England for the manufacture of cutlery. Indeed, in Sheffield, the old system is maintained in its integrity; THOMAS FITCH & SONS having thus far refused altogether to adopt the Bessemer process for any purpose, and manufacturing the steel even for their locomotive tires by the old process. FIRTH'S tires are sold in the market at forty-five pounds steling per ton: while those, in the manufacture of which Bessemer steel is used, can be afforded as low as twenty-eight ponnds per ton. By specimens of both exhibited at the Exposition, the superiority of the steel cast from the crucible was settled beyond a question, as this steel was considerably tougher than that afforded by the Bessemer process. There is no doubt, however, that the Bessemer, as manufactured in England, is good enough for locomotive tires and rails (steel or steel-headed); and it may be taken for granted, therefore, that for these purposes the Bessemer metal must, on account of its lower cost, supersede the crucible product alto ether. It may te remarked that NAYLOR, VICKERS & Co. exhibit at their works a mode of manufacturing crucible steel tires at a cost of something less than forty pounds sterling per ton, which is still more than fifty per cent. over the cost of the Bessemer process, the superior cheapness of which, as compared with all others, must be conceded.

The other new processes for making steel are worthy of notice. The one has been patented by BERARD, and was tested at the forges of Montataire, France; and the other belongs to EMILLE and PIERRE E. MARTIN, and is now in operation at Sireuil. In both these systems cast-steel is made in a reverberatory furnace; and in BERARD'S process the conversion of pig iron is sought to be effected by subjecting the metal alternately to decarbonizing and a recarbonizing flame, for which purpose the blast is used. BERARD uses the Siemen's furnace; the alterations in current required in working the regenerators serving to effect the alterations of the flame. The furnace is halved by means of a bridge, thus enabling the smelter to operate upon two masses, the one fresh and the other nearly decarbonized, at the same time. The system of the Messrs. MARTIN is in operation not merely in their own works at Sireuil, but at Le Creuzot and Sirminy, as well as in some works in the United States, where it has just been introduced. In this process, the pig is deprived of its carbon by the addition of pieces of wrought-iron or steel, either in the form of shingled puddle-balls or of scrap, the quantity of the latter being about equal to that of the pig itself. A Siemen's furnace is used to melt a portion of the gray pig, which is permitted to remain about half an hour after fusion, in order to bring it to an intense white heat. Portions of malleable iron, at bright red heat, are then added is successive quantities of a couple of hundred pounds, at intervals of twenty minutes to half an hour; care being taken that each portion be melted before the next is added, and so on. After two or three additions, ebullition in the bath of metal begins, and continues until the pig is thoroughly decarbonized. A quantity of pig, generally of the same kind as was first used, is then added, in whatever proportion it may be needed to yield the required hardness; and when this latter has been melted, the bath is stirred thoroughly, to ensure homogenity, and a proof is taken. If it proves too soft, more pig is added; if too hard, merely waiting from a quarter to half an hour before pouring will materially soften the metal. This process has the advantage of being one of the most manageable known, and results in a steel scarcely, if at all, inferior to the best crucible metal.

It is not asserted that cast-steel can be made at as low cost by either of these processes as by the Bessemer. In fact, the Martin process stands, as regards cost, about half way between the Bessemer and the crucible. Its great difficulty is, that the high heat required to effect the partial decarbonization of pig, before scrap is added, results in the rapid destruction of the furnace used.

In England, the iron used for the pneumatic (Bessemer) process is obtained almost exclusively from the red hematite ores of the Cumberland district, which only contains traces of phosphoric acid and traces of sulphuric acid, and for analysis of which the reader may consult Dr. PERCY'S work on metallurgy. The blast furnaces for smelting average about fifty feet in height, with a diameter of fifteen feet at the boshes, and are generally open-topped. An opinion exists among ironmasters that the quality of the metal is affected injuriously by any attempt to draw off the gas; though at the furnaces of the Barrow Hematite Iron and Steel Company, the West Cumberland, and the Wigan Iron and Coal Company, this notion has been rejected, and the waste gas is used for heating the blast. These companies, however, have not the reputation of producing as good pig as is produced by the Whitehaven Hematite Iron Company, (Cleator), the Workington Iron Company, or the Harrington—though this probably results from the fact that the latter use better materials, and not from any injury caused by the utilization of the gas. The fuel used at the furnaces is of the best Newcastle coke, containing in 100 parts 0.8 sulphur and 4.45 ash. For fluxes, limestone, quite free from phosphorus, and black shale from the coal-beds, consisting of clay and carbonaceous matter, without appreciable sulphur, are universally used; and as it is important that the iron should be as gray as may be, about a ton and a half of coke to the ton of iron produced is the rule—about fifty hours being the allotted period of gestation in the furnace. The yield of a single furnace, under these conditions, is an average of 250 tons a week. The blast is under pressure of from 3 3-4 to 4 pounds, and is heated from 650 to 700 degrees Fahrenheit.

Sulphur and phosphorus in the pig are fatal to the quality of the steel, because the pneumatic process has no power to eliminate them, and their presence materially injures the quality of the metal. In fact, an effective means of eliminating these substances in the process of conversion would be a supplement to the Bessemer invention nearly or quite as valuable as the invention itself.

It is usual, the Cumberland irons forming the basis, to mix in other brands in small quantities; but no definite percentage of mixture seems as yet to have been established as productive of the best results. The Wigan Iron and Coal Company, Lancashire, produces an iron quite adaptable to the purpose, but not as good as the Cumberland. Frest and Dean iron, from brown hematite ores, is frequently used in small quantities, but contains too large a percentage of sulphur; and Weardale, an iron from spathic ores, unusually abundant in manganese, works well. As a rule, the Workington iron contains too large a percentage of silicon to be used alone, the silicon causing it to work too hot; but, mixed with brands the tendency of which are to work cold and pasty, it forms an excellent base for Bessemer steel.

The Lancashire Steel Company uses the following mixture for the Bessemer manufacture:

Workington	45
Harrington	40
West-Cumberland	10
Wigan	20
Weardale	7
Forest of Dean	3
Spiegel	7 1-2
	127 1-2

Of this total, 95 parts are Cumberland iron. Another mixture, of quite extensive application, for the production of good steel on the Bessemer plan, is embodied in the subjoined table:

Cleator	40
Workington	20
Harrington, No. 1	15
Harrington, No. 2	5
Forest of Dean	10
Wigan	3
Spiegel	6 1-2
	122 1-2

Of this total, 80 parts are Cumberland product. The iron is generally melted in reverberatory furnaces, though, at several works, cupolas have been substituted with excellent results. The Mersey Iron and Steel Company, Liverpool, in particular, use the cupola for melting the spiegeleisen; at the works of one other company, WOODWARD'S patent steam-jet cupola is used; and the heavy firms of CAMMEL & Co., the Bolton Iron and Steel Company, and the Barrow Hematite Iron and Steel Company, use IRELAND'S upper tuyere cupola, which melts very fast, and is of sufficient capacity to hold an ordinary loading of pig in the portion below the upper row of tuyeres. The size erected for a five-ton plant is seven feet in diameter, and will melt five tons of iron in three quarters of an hour.

In the arrangement for the plant, very few alterations from the drawings of Mr. BESSEMER have been made. A pair of converting-vessels, usually placed the one opposite the other, but sometimes side by side, are sunk a few feet below the level of the floor, beside the casting pit, and, mounted on trunnions, are revolved with a rack and pinion, driven by hydraulic power. The furnaces for melting are situated in another room, having a floor-level considerably higher than that of the converting-room, so that the melted metal is transferred to the converters by means of its own gravity, the latter being suitably tipped to receive it. In the centre of the casting-pit is placed a vertical hydraulic piston or crane, carrying a platform at its upper end, at one end of which is a ladle, sufficiently large to contain the contents of the converter at the completion of the operation. A nozzle and stopper in the bottom of the ladle regulate the flow of steel. A couple of hydraulic cranes, or vertical pistons, carrying a horizontal jib with a rolling carriage, to which is fixed a hook and links for fitting the ingots, stand near the edge of the pit, and serve to lift off the various parts of the converters, in case repairs may be needed.

The blast-valve and hydraulic appliances pertaining to the converters are worked from a valve-stand at a suitable distance from the pit, the cranes being operated directly by a valve; and the whole manipulation is managed and controlled with an ease and accuracy quite suggestive of the value of hydraulic power in the handling of large masses. The water pressure used is equal to 43,200 lbs. to the square-foot; and ingots for rails are cast about a foot square; while for locomotive cranks they are rectangular, about two feet by one foot and one third; and for other forgings, of the size and shape needed. The test used in England was introduced from Sweden, and consists of dissolving parings of the metal in a solution of nitric acid of the gravity of 1.2, which receives a color more or less brown in proportion to the percentage of carbon present in the metal.

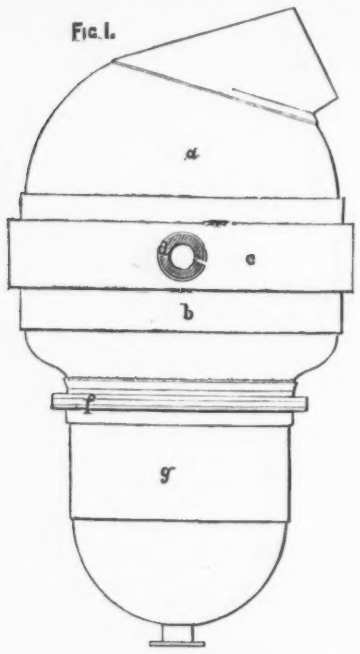
The Bessemer steel produced in Sweden was proved at the Exposition to be far better in quality than the English Bessemer, and may be used with success in the most delicate cutlery, or drawn practicably into wire as fine as No. 47, or even finer. This is probably due to the fact that the ore used in Sweden for the production of Bessemer is exclusively magnetic and very pure. That used at the Tagersta works contains a large percentage of magnetic oxide, and yields an excellent steel without the addition of spiegeleisen—a steel, in fact, not at all redshort.

The most noticeable feature of the pigs, gray and mottled, is the large percentage of manganese, together with extreme freedom from sulphur, due, of course, to the use of wood coal for smelting, and to the adoption of a very high heat in the roasting-kiln, which is constructed after Westman's patent, and heated with waste gas from the blast-furnaces. The heat is carried as high as it can be without agglomerating the materials, metamorphoing the ore from a compact to a very porous substance, and driving off any admixture of sulphur less than four per cent. The furnaces are generally very small—40 feet high, 8 feet at the boshes, and 3 feet at the hearth—and yield from seventy to eighty tons per week. A fixed form of converting-vessel is used; and the tuyeres, about twenty in number, are placed horizontally just above the bottom, and so inclined from the radial direction as to give a rotary motion to the melted metal. An air-passage surrounds the vessel at the back of the tuyeres, with a movable plate opposite each to give access to them; and the metal is run off from the vessel by a spout in the upper portion of it.

The Austrian Bessemer metal vies with the Swedish, and, like the Swedish, is produced from pig nearly free from sulphur and phosphorus, and containing a large percentage of manganese. The iron is obtained from spathic ores, contains 3.46 per cent. of manganese, and is used for recarbonizing, as in Sweden, instead of the usual spiegeleisen. The fixed vessel is used; and the metal is run directly from the blast-furnace into the converter. The principal works are at Newburg, in the province of Styria.

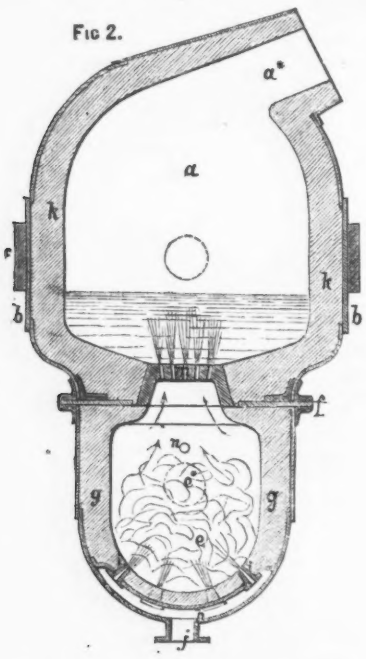
In France, good specimens of the Bessemer metal are produced; but as they have no marked superiority over those of England, the subject need not be reviewed. The manufacture has been established at six works, having a total annual product of twelve to fifteen thousand tons; and with this item may be completed the review of the Bessemer process in Europe, as it prevailed at the beginning of the year 1868, and, in fact, still prevails, the improvements lately patented by Mr. BESSEMER not having been as yet generally introduced.

FIG. 1.



The accompanying cuts are explanatory of the improvements above specified for the purpose of fusing, at a minimum of expense, decarbonized or malleable iron and steel, thus rendering it homogeneous, and, hence, more valuable for manufacturing purposes. Should it be found that Mr. BESSEMER, by the invention under review, has secured a sufficiently high temperature to expel the small percentage of sulphur and phosphorus that remains after smelting, there can be no doubt that he has at last produced something which may supersede the puddling process for the conversion of pig into malleable iron. This, it will be remembered, was at first claimed for the Bessemer process as it now prevails. The principle applied in the new invention is that of the ordinary blow-pipe, magnified and multiplied to suit the dimensions of a furnace, and consists in applying the heat, generated by the combustion of solid, liquid, or gaseous matter, in jets and streams directly to the metal to be fused—these jets,

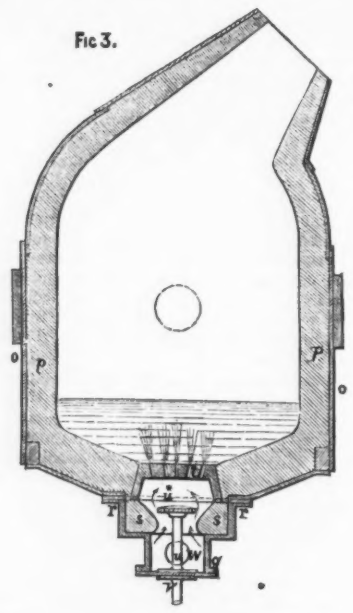
FIG 2.



(whether of flame or of liquid or gaseous fuel), in combination with atmospheric air, being driven in among the solid pieces to be melted, or into the resulting fluid metal. The substantial economy of heat in Mr. BESSEMER's invention consists, therefore, in two points, namely, First, the direct application of jets of fire to the metal to be fused; and, secondly, the application thereof with a certain penetrative momentum, which effects a more complete utilization of the heat to the purpose intended. The flame, or matter to produce it, is forced upward into the metal through tuyeres, after the manner of atmospheric air in the Bessemer steel process; and this results, of course, in two specifications. Either the product of combustion (flame) may be used directly, being forced through the tuyeres; or combustible fuels in jets, which igniting at any point will produce flame, or which, combined with jets of atmospheric air, will result in combustion, may be forced in currents to meet at a certain angle, thus creating the flame primarily in the midst of the metal. In the latter case, the force generated by combustion may be held to be equal to the momentum of the flame propelled from or through the tuyeres in the former; so that, in either case, the utmost utilization of heat is effected, which has been the aim of the inventor.

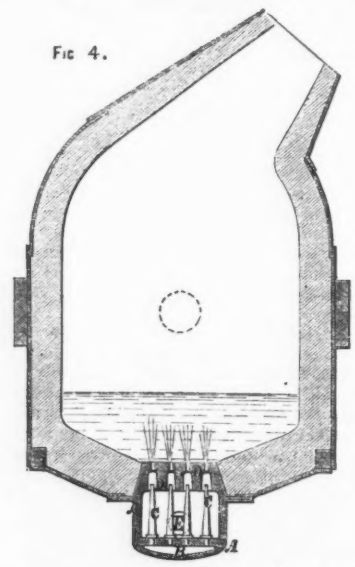
Figure 1 and Figure 2 of the accompanying illustrations represent the mode preferred for the consumption of solid fuel, the former being an elevation and the latter a vertical section. The converting-vessel, *a*, consists of a shell of plate-iron, *b*, riveted together, and having a trunnion band, *c*, passing around it. From this band project the trunnions, *d*, through which are formed air-passages for the passage of oxygen into the fuel box below. The converter, *a*, is lined with gannister, *k*, and beneath it is located the fire-box, *e*, joined by flanges, *f*, and lined with gannister or fire-bricks, *g*. The space, *h*, in the lower part of the fire-box, is formed by a diaphragm of iron, with several nozzles, *i*, fitted into it, which extend through the lining, *g*, and convey blasts of air into the midsts of the fuel to promote combustion. These blasts are conducted from the trunnion by a pipe down to the flanged opening, *j*, which communicates with the fire-box by means of tuyeres, *i*. The door, a circular opening, *e**, is secured against the pressure by faced metal joints, or by a feeding-valve. In the bottom of the converter or melting-vessel is placed a tuyere, or move, *m*, of fire-clay or plumbago, which may be renewed as often

FIG 3.



as needed by simply removing the fire box. For use, the whole may be mounted on a frame by means of axes, which is Mr. BESSEMER's expressed preference. A coke fire is made in the fire-box, a low pressure of blast being used until the melting-vessel has been heated, when the fuel-box, *e*, may be filled, and the whole turned on its axes, until the mouth, *a**, is sufficiently depressed for the introduction of the metal, which Mr. BESSEMER prefers to heat to preliminary whiteness in some contiguous furnace, though it is not necessary to the process. A powerful blast (say twenty pounds to the square inch) is then turned on, and an intense combustion of the fuel is at once produced. Signs of fusion exhibited in the mass, from one-fourth to three-fourths of molten pig—gray hematite or white spathic preferred—is added; and the flame and heated products of combustion are driven through the molten liquid, diffusing itself in numerous fire-bubbles, and raising the mass to an intense heat, but without the

FIG 4.



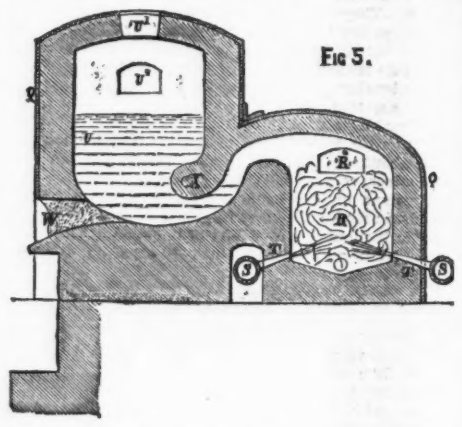
rapid decarbonization of the pneumatic process. If the quantity of pig or carburet added be too large to produce any given quality of steel, or if it be the intention to produce a soft malleable iron, air may be admitted to the converter by opening a valve, and forcing it into the fire-box at the point *n*, which is above the surface of the fuel, and permitting it to pass thence through the tuyeres into the molten metal, thus rapidly decarbonizing it, as well as heating it additionally. The whole having been reduced to fusion, it is poured into the casting ladle, where the melted spiegeleisen or ferromanganese is added; though either may be as well added before pouring, if more convenient.

When the vessel is to be used for decarbonizing the metal, Mr. BESSEMER prefers to construct it with two hearths or divisions, as described in specification No. 967; and in a more complete specification, filed Sept. 21st, 1868, the second hearth of the vessel to be provided with a fire-box below the tuyeres, in place of the tuyere-box, which is to be similar to that represented in Figure 1 and 2, to the end that the fusion of the metal may be effected by jets of flame and of the heated products of combustion, instead of by atmospheric air alone.

When gaseous or liquid fuel is to be used, the fire-box may be considerably smaller, and the tuyeres may be so arranged as to facilitate the union of these matters with blasts of air. There are also tuyeres at the upper part of the fire-box, through which to force the flame and heated product into the converting-vessel proper. Figure 3 of the accompanying drawings represents a section of the converting-vessel, mounted on axes, and arranged for the use of gases or fluid fuel. A plate-iron vessel, *o*, is lined with fire-brick, *p*, to the lower part of which, by slotted studs, *r*, is joined the tuyere-box, *q*, the upper portion of the pipe, *u*, being provided with a perforated disk, *u**, whence liquid or gaseous fuel is projected in numerous fine jets. A ring of fire-clay, *s*, is fitted into this box, and serves to support the lower ring of the tuyere, *t*. A pipe, *v*, communicating with the hollow trunnions, is used as a leader, and through it the fluid fuel is forced with a pressure sufficient to ejaculate it in sharp jets through the perforated disk, *u**; while, at the same time, a blast of hot or cold air is forced into the lower part of the tuyere-box, through the opening, *w*, which represents the orifice of a pipe leading to one of the hollow trunnions, and in communication with the blast-engine, the air from which passes upward around the pipe, *u*, throwing up the liquid fuel in sprays, or combining with the gases, and passing in numerous powerful jets into the converter.

A modification of this is exhibited in Figure 4, which is also a vertical section. A, the tuyere-box, is divided into two parts,

FIG 5.

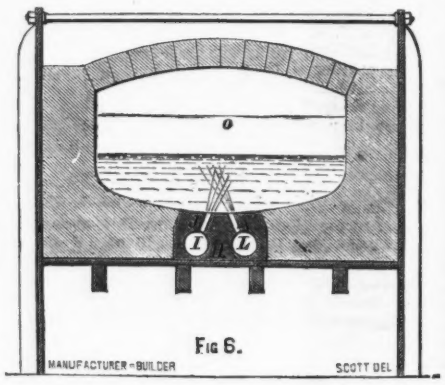


into the inferior of which the fuel is admitted at the orifice, B, passing through the several small nozzles, C, the orifices of which are inserted in the tuyere passages, D. Air enters by the orifice, E, passes upward around the nozzles, C, and enters in the form of a compound jet into the fluid or solid in the converter, as before described.

Figure 5 exhibits in vertical cross-section a furnace suitable for carrying out a modification of the invention. Q is a rectangular shell of iron, lined with gannister or brick; R is the fuel-box, with door at R*; S' and S are blast-pipes, conveying air through the tuyeres, T, into the fuel-box. The converting-vessel, U, is supplied with metal by the door, U*, or the opening, U', through which the sparks and products of combustion escape; and an opening, W, stopped with loam, is provided for the running off of the metal. An inverted fire-bridge is formed at X, beneath which the flame passes from the box, U, into the metal to be fused.

Figure 6 represents a mode of applying two jets, one of combustible liquid or gas, and another of atmospheric air, so as to unite at an angle, producing combustion; and exhibits a cross-section of a reverberatory furnace, into the bed of which a double tuyere-

FIG 6.



block, H, has been fitted. The pipe, A, communicates with the passage I, for the conveyance of fuel, having several tuyere passages, J, pointing upward into the furnace. The passage, L, communicates with the blast-engine. Jets of air at N are projected upward, so as to meet the jets of fuel issuing at the orifices at J, combustion resulting from tha conjunction. Or, a fire made at one end of the furnace, and passing over the fire-bridge, O, may be reverberated down upon the metal, the fire either resulting from the combustion of solid fuel in the fire-grate behind the bridge, O, or from the combustion of gases and heated air in an air-furnace.

The results of this invention it would be difficult to measure, especially as it effects a utilization for converting purposes of all hydrocarbons, or matters capable of yielding combustible gases; thus considerably extending the range of available fuels for the manufacture of malleable iron and steel, and rendering naphtha, or any refuse product of petroleum, valuable for the use of the converting furnace. As the age of steel seems to be fast gaining upon the world, such considerations have great practical importance.

VELOCITY OF CANNON BALLS.—At the recent ordnance experiments at Fortress Monroe, the initial velocity of cannon balls was tested by a very delicate instrument, the "Schultz Chromoscope." The apparatus, which is operated by electricity, is thus described: "Two wire targets are placed, one about twenty yards from the gun, and the second about the same distance further on. These are connected by a fine insulated wire with the instrument, which is about four hundred yards in the rear of the ordnance. The instrument is adjusted on a plan similar to an electro-balistic machine. When the shot is fired, it cuts the wire in the first target, and then in like manner cuts the wire in the second target, the instant each wire is severed being recorded by the instrument. The interval of time occupied by the ball in passing from one target to the other furnishes the data for obaining the initial velocity of the shot.

Mining on the Pacific Coast—The Quicksilver, Coal and Iron Trade in 1868.

We are obliged, for want of space in this week's issue, to hold over until our next a very interesting and extended review of mining on the Pacific slope during the past year. We however, give below a condensed statement of the products, assessments and dividends of the Comstock Mines, and some others in California.

A review of the coal and quicksilver and iron trade is also appended.

STATEMENT OF THE CLAIMS ON THE COMSTOCK LODE FOR THE YEARS 1867 AND 1868.

Company.	Bullion.	Asse'ment.	Dividend*
Alpha		$90,000	
Belcher		104,000	
Bullion		100,000	
Crown Point	$1,086,230	90,000	360,000
Confidence	110,668	15,600	
Chollar-Potosi	885,076	140,000	
Daney		56,000	
Exchequer		24,000	
Empire	213,771		
Gould & Curry	29,557	72,000	
Gold Hill Quartz	103,686	10,000	7,500
Hale & Norcross	392,400	200,000	
Imperial	684,040	100,000	24,000
Justice & Independent		52,400	
Kentuck	1,259,707		480,000
Lady Bryan	20,500	150,000	
Ophir		167,000	
Overman	352,590	176,000	
Segregated Belcher	4,371	38,400	
Savage	2,534,868		1,184,000
Sierra Nevada	22,805	90,000	
Yellow Jacket	*800,000	150,000	360,000
In 1868	$8,499,769	$1,825,500	$2,415,500
In 1867	13,626,062	1,296,250	3,991,950
In 1866	11,732,100	1,194,820	1,754,400

* Estimated.

OTHER MINES.

Dividends—North Star (Cal.) in June $15,000, in July $15,000, in August $15,000; Bacon in June $8,000; Golden Rule (Cal.) in June $1,500, in July $1,500, in October $1,500, in December $1,500; Eureka (Cal.) in August $30,000, in October $20,000, in November $20,000, in December $30,000—total, $159,000. Assessments—Julia, in April $5,000, in August $3,000, in October $3,000; United States, in April $12,000, in May $4,000 in June $4,000, in October $4,000; Union, in June $6,000; Rising Star, in November $120,000; Mohawk, in December $7,200—total, $168,200.

QUICKSILVER.

In the production of quicksilver, says the San Francisco Commercial *Herald*, "The Almaden Mine, as usual, takes the lead, furnishing more than one-half of the total quantity produced during the past year, while the New Idrian comes next in order—12,300 flasks—and the Redington Mine, formerly known as the Lake Mine, gives 8,700 flasks. Of the 2,100 flasks from sundry mines, it is understood that the Guadalupe furnished 1,050, the San Juan Bautisto Mine 800, and the Phœnix Mine, Lake County and one or two others the balance. The production of the New Almaden Mine has materially fallen off during the past two years, as compared with that in the earlier history of its present owners. This mine gave from the commencement of the Quicksilver Mining Company's control of it, say for the—

	Flasks.	Av. per mo.
Fourteen months ending Dec. 31, 1864	46,936	3,352 4-7
Twelve months ending Dec. 31, 1865	47,194	3,932 5-6
Twelve months ending Dec. 31, 1866	35,150	2,927 1-6
Twelve months ending Dec. 31, 1867	24,461 }	
Twelve months ending Dec. 31, 1868	25,600 }	
Twenty-four months	50,061	2,086 7-12

"We have grouped the years 1867 and 1868 together, as the company, in their report for the year 1867, state that the 'mine produced 24,461 flasks of quicksilver, and, in addition, ores which, if reduced, would have yielded about 4,000 flasks more.' If this estimate be correct, then the real production for 1868 is about 21,600 flasks, or an average of 1,800 flasks per month less than one-half of that in 1865. The consumption of quicksilver is increasing on this coast, owing to the opening of new mines, particularly in the State of Nevada. The price hereabouts, owing to the tariff and combination entered into between the leading producers is the equivalent of 60 cents, gold, per pound in San Francisco. The price in London, the leading market for this article, is some 15 per cent. less than four or five years ago. The same observation applies substantially to China and other foreign markets. The fall in price above may be owing to the increased production in California, as compared with that prior to 1864, and to the competition experienced from the Almaden Mine of Spain. The following is the quicksilver produced in 1868:

	Flasks.
New Almaden mine	25,600
New Idria mine	12,300
Redington mine	8,700
And Sundry other mines	2,100
Total	48,700

"The exports to the different countries for 1867, and the previous three years, were as follows:

To	1865.	1866.	1867.	1868.
New York	6,800	3,800	2,900	4,500
Great Britain	10,400	3,000	1,500	3,500
China	12,248	10,252	10,011	17,785
Mexico	2,789	9,561	10,042	14,120
South America	7,500	3,000	3,800	2,500
Australia	200	575	300	1,580
British Columbia	24	6	20	20
Other countries	508	93	250	501
Total flasks	42,469	30,287	28,853	44,506

COAL.

The following is a comparative statement of the transports of coal into San Francisco:

	1868.	1867.
Anthracite, tons	22,592	48,518
Cumberland, tons	322	8,591
" cks	3,940	7,172
English, tons	29,561	7,302
Sydney, tons	31,590	26,619
Chili, tons	8,511	14,949
Vancouver Island,	23,348	14,829
Bell'm Bay, tons	13,866	8,899
Mt. Diablo, tons	132,537	109,490
Coos Bay, tons	10,524	5,415
Fuca Straits, tons	....	500
Saghalien, tons	204	218

Specified on the way from Domestic Atlantic ports:

December 31,	1868.	1867.
Tons	11,605	15,464
Casks,	3,912	1,319

Commenting upon the above, the *Commercial Herald* remarks:

"Foreign imports have been large throughout 1868, and the prospective supplies known to be en route are considerable, consisting chiefly of Australian and English. Of the former a dozen cargoes, at least, are expected within a short time. The last cargo sale of Wallsend coming to our knowledge was that of the Woosung, at $11 25 cash. Since then the White Star has arrived with 1,600 tons. Exclusive of supplies for government and the Pacific Mail Steamship Company, there is manifested, from Eastern supply ports, upwards of 4,000 tons various and about 4,000 hhds. Cumberland. The large amount of the latter has a very depressing effect upon the market at this time, rendering sales difficult at our quotations. The California supply of Steam from the Mount Diablo mines is noteworthy. Details of receipts will be found at the head of this article, showing steady and progressive advance. The ruling rate for this description is $6 to $8 per ton, the lesser rate for screenings, which enter largely into use for steam purposes. The receipts from Bellingham Bay, Nalamo, Coos Bay, etc., are now constant and regular, all of which has its particular place and value in the market. But a single small invoice of Saghalien, say 204 tons, has been received during the year from the mines of Alaska; the quality, however, is "pure," and is superior for many uses. The present market price of coal is too low for the profitable working of the mine, which, by the way, is trifling, and is convenient of access to shipping. The time will come, however, when the Saghalien mine will be in high favor with our people. In addition to the foregoing there are several cargoes of English en route to this port, the full particulars of which, as well as actual amount, are unknown to us, but believed to be considerable. The result of all is, that our Coal supplies promise to be superabundant for six months to come; prices, in consequence, will be proportionably low, which circumstance will no doubt be improved by the trade having large capital to prepare for the change which in good time must surely follow. Our quotations elsewhere will be found to approximate the truth. In making up the statistics of imported coals, we may observe that the figures derived from manifests are not always critically accurate, cargoes usually falling a little short, or overrunning the amounts reported. So also with our domestic coals, very considerable amounts being shipped directly from the points of embarkation to interior points of the State. Classifying our coal as foreign, eastern and domestic, and discarding fractions of less than 100 tons, the following tabular statement of the past three years will be found substantially correct, and for all practical purposes will indicate the peculiarities of the market within the period mentioned:

	1866.	1867.	1868.
Foreign	74,500	64,000	93,000
Eastern	22,500	62,500	32,700
Domestic	93,500	124,500	157,000
Totals	190,500	251,000	282,700

"In 1866 we imported 53,000 tons from Australia, which is nearly double the receipts from there of any previous or subsequent year; in 1867 the receipts of Eastern were large; due to the importation of 43,500 tons Anthracite; In 1868 we received 29,500 tons English, being an excess of 15,000 tons over the average of previous years. We have also imported during the past year about 10,000 tons from Nahaimo in excess of previous years.

"The imports of Cumberland Coal, for the years 1866, 1867, and 1868, were as follows:

	Casks.	Tons.
In 1866	4,401	7,324
In 1867	7,112	8,591
In 1868	4,392	3,222
Total for three years	15,885	19,137
Average	5,295	6,379

"The imports of Anthracite for the same period have been as follows:

	Tons.
In 1866	12,124
In 1867	48,518
In 1868	25,285
Total for three past years	85,927
Average	28,642

"The quantities of coal afloat on the 31st December of each of the past three years, from Atlantic ports bound for San Francisco, as shown by manifests, were as follows:

	Casks.	Tons.
December 31st, 1866	2,006	26,456
December 31st, 1867	1,319	15,464
December 31st, 1868	4,048	13,655

"The wholesale prices of the various brands of coal, per ton, of 2,240 lbs. for 1867 and 1868, were as follows:

1867.	Highest.	Lowest.	Average.
Cumberland, in casks	$22 50	$18 00	$20 75
Cumberland, in bulk	19 00	16 00	17 50
Anthracite, various brands	17 50	13 00	15 25
1868.			
Cumberland, in casks	$32 50	$21 00	$26 75
Cumberland, in bulk	28 00	18 00	23 00
Anthracite, various brands	21 00	14 00	17 50

"The present price for Cumberland, in casks, is $23 50 per ton; do. bulk, $21; Anthracite, various brands, $17 to 21. The above cash prices obtainable for cargoes.

IRON.

The following is a comparative statement of the iron imports of San Francisco:

Iron.	1868.	1867.
Pig, tons	16,659	7,923
Bar, bars	314,683	234,629
Plate, pcs.	23,689	23,587
Var's bdls	150,281	57,954
" pcs.	7,349	991
" pcs. 4	38,424	27,401

Specified on the way from Domestic Atlantic Ports:

Iron. December 31,	1868.	1867.
Pig, tons	1,365	936
Bar, bars	4,046	6,810
Plate, pcs.	410	504
Var's, bdls.	12,234	19,966

Imports during 1868, says the San Francisco *Commercial Herald*, have been considerable, as will be observed by noting the aboves figures, including 172,585 bars Railroad Iron, which is exclusive of the large quanity of same now manifested as en-route to this port chiefly for the Central Pacific Road. The large quantity of 16,659 tons Pig Iron has been received here during the past year. The price of Pig Iron has ruled low for many months past and is likely to continue to rule low for some time to come, notwithstanding the increasing consumption of this coast. A few hundred tons of Oregon Pig Iron have been received here, the quality highly approved by foundrymen, but current rates are too low for the successful working of the ore, and so long as prices rule below $50, the business cannot be prosecuted with profit. A rolling mill is now in successful operation in this city, contributing material aid to the necessities of this coast. It is a difficult matter to keep the run of our market for Pig Iron, it is so manipulated and controlled by a "ring," that actual transactions are seldom given to outsiders. During December English Iron sold at $33 50, and some inferior as low as $25—at the same time, nominal price for Scotch Pig $35. The Metal business in this city, as well as in the State at large, is in few hands, being more or less under the control of three or four wealthy houses, who have for fifteen or twenty years past sought to monopolize the trade of this coast, both as importers and jobbers. The success of the monopoly is very apparent, so far as the pecuinary results to the parties in interest are concerned, but to all outsiders it has been, in the main, detrimental, and must continue so for all that we say or do. The trade in Bar and Sheet Iron has more or less continued in the hands of wholesale dealers, who import their own stocks and are seldom in the market to buy, exepting at less than cost and charges, or to supply some deficiencies caused in their own stocks. Some importations have been complained of as being inferior in quality. Galvanized Sheet Iron has been very dull for some time past and in large supply."

Nitro-Glycerine in the Oil Regions.

We find in the Titusville *Herald* of Feb. 3 an account of a tremendous blast in an oil well, in which fifty pounds of nitro-glycerine were introduced and exploded: "On the Mason farm a well has been sunk to the depth of over 800 feet, which has hitherto yielded but little oil, with an abundance of gas. The proprietor, Jonathan Watson, determined to try the effect of a heavy charge of nitro-glycerine, and yesterday fifty pounds were exploded by Mr. Mowbray and his assistants. Two cartridges were prepared, the one twenty-five inches in length, the other thirty-five inches, and each five inches in diameter. These were connected by a short copper wire, thirty feet in length, so as to adjust the two charges immediately opposite to several mud veins which were known to be that distance apart, the heaviest charge of thirty pounds nitro-glycerine being at the lower vein, 783 feet deep, the lighter charge at the upper vein. Twelve exploders were inserted in the largest cartridge, and eight in the other, forming a train of twenty exploders, which, by means of insulated wire, were connected about 250 feet from the well with an electric battery. Everything being arranged, the order was given to fire. In an instant the discharge took place, and a report like a cannon fired from a distance, accompanied by a very perceptible vibration of the earth around, was noticed by those present. The operator and an assistant immediately pulled on the wire, thereby endeavoring to prevent entanglement. When about fifty feet of the wire had been drawn out a reaction ensued, dragging the parties who were pulling at the wire towards the well for a distance of ten feet, to their surprise and great wonderment; (this arose from the column of water lifted by the explosion and its return and fall); but most certainly the parties thought for an instant Old Scran was hauling them down below, to answer for blasting his oil factory. The result of the explosion on the well cannot be ascertained until the well has been tubed, and the water (a column of 720 feet), has been pumped off. The indications are that so heavy an explosion (the bale of the cartridge which was recovered proved the terrible force exerted), must have penetrated the mud veins for a considerable distance. The reader may feel interested in knowing that the water in the well amounted to about twenty-two barrels; the volume of gases, evolved by the explosion, say at a pressure of forty-five barrels per square inch, or three atmospheres compressed into one, would fill 281 barrels, and the power required to lift the column of water would be equal to four and one-half tons. The operation was entirely satisfactory to all parties, and the ability to safely fire these heavy charges with as much care as a fire-cracker, has been demonstrated."

ATLANTIC BALLOON VOYAGE.—A Swiss æronaut, with an experience of twelve years in ascensions, has recently arrived in this country, to carry out his plan of crossing the Atlantic through the air. He has brought with him, in complete readiness, the balloon in which he proposes to make his journey. It is of a peculiar shape, and of the following dimensions: 95 feet in height, 150 feet in diameter; capacity for gas, 125,000 cubic feet. The car, being made of bamboo, and in the shape of a house, resembles a long bamboo hut, and will, it is stated, accommodate as many passengers as desire to go upon the voyage. The æronaut is desirous of starting at as early a date as possible, and, at all events, before the return of warm weather. His reason for this is, that the balloon would suffer a dangerous loss of gas by expansion in the heat of warm suns.

LIGHT.—It is reported that a Scotch engineer has recently discovered a method of producing intense light with common coal gas, by mixing it with atmospheric air. Under ordinary conditions, it is stated that the introduction diminishes the illuminating power, but greatly increases the heat of a gas flame. In the new plan the mixture of gases is lighted after passing through a tissue of wires, composed of irridium and platinum; the metal soon becomes heated, the flame disappears, and a vivid white light is the result. It will burn, it is said, in a gale of wind without protection, and will not be extingnished by a heavy fall of rain.

[From the Wooster (Ohio) *Republican*.]

THE MANUFACTURER AND BUILDER.—This practical journal of industrial progress should be in the hands of every manufacturer, builder, mechanic, architect and business man. It is splendidly illustrated with engravings of everything new relative to manufacturing and building, and cannot but furnish a treasure of hints to every practical man. Terms, $1 50 a year; clubs of twenty, $1 each. Address Western & Co., Publishers, 37 Park Row, New York.

MARKET REVIEW.

FRIDAY EVENING, Feb. 12, 1869.

Gold and Silver Stocks.—The sales of the Mining Board are mostly confined to Colorado stocks, which have greatly fallen in price. Gregory sold yesterday as low as $3.35 to $3.40, while Smith and Parmelee went off at 155 to 165! What's the matter? Nevada stocks are unchanged. The following is the report of the Petroleum and Mining Stock Board:

	Bid.	Asked.
Alameda Silver	..	
American Flag	..	..
Bates & Baxter Gold	..	..
Benton Gold	15	
Bobtail Gold	..	..
Black Hawk Gold		2 50
Consolidated Gregory	2 35	2 45
Edgehill Mining	2 50	
Gold Hill	..	..
Gunnell Gold	..	50
Grass Valley	40	50
Hamilton G. & S. B.	..	..
Holman	..	
Hope Gold	..	5
Twin River Silver		
Gunnell Union	..	..
Combination Silver		3 00
Sensenderfer		
Quicksilver	23½	24
Atlantic and Pacific		
Kipp & Buell Gold	..	5
La Crosse Gold	14	17
Liberty Gold	..	..
Manhattan Silver	75 00	120 00
Midas Silver		
Montana Gold	40	48
New York	75	1 00
Nye Gold	..	
Owyhee Mining		22 00
People's G. & S. of Cal	..	
Quartz Hill	68	75
Rocky Mountain Gold	8	.. 10
Smith & Parmlee Gold	1 70	1 75
Texas Gold	..	
Corydon	10	
Symonds Fork Gold		
N. Y. & Eldorado		
Mariposa	8½	8½
Mariposa preferred	21½	28½
Eagle Gold		

Copper Stocks.—The New York market in Copper stocks is unchanged. At Boston, to-day, prices have ruled as follows.

Copper Falls	16½	Quincy	29
Franklin	19½	Cary Improvement	8½
Hancock	4	Hecla	70
Minnesota	2½	Bos. Hart. & Erie R. R.	27½
Calumet	50	Isle Royal	..
Water Power	15½		

Petroleum Stocks—Are quoted as follows:

	Bid.	Asked.		Bid.	Asked.
Bennehoff Run	.. 30	..	Rynd Farm		
Brevoort....ex div.	1 00		United Pet. Farms	.. 15	..
Buchanan Farm			Union		
Central	89	90	United States	1 45	1 75
Clinton Oil			Sherman & Barnsdale	..	..
National	3 50	4 00	Second National	.. 5	.. ..
N. Y. and Alleghany	.. 50	1 00	Bliven	.. ..	.. ..
Pithole Creek	1 10	1 25	Rathbone	.. ..	.. ..
Home Petroleum	4 25		Northern Light	.. 35	..
Pacific Oil			Bergen Coal and Oil	..	..

Miscellaneous Stocks.—Wallkill Land is quoted at 20@30; Rutland Marble, 16 00@16 80; Brunswick City Land, 9 00@10 00; Cumberland, 39 Lehigh and Susq. Coal, 85@90; W. U. Telegraph, 37½; Quicksilver Mining Co., 23½; Mariposa R. Pf., 28½; Manhattan Gas, 250; Pacific M., 113; Beuns. C. L., 10; Merch. U. Ex., 20½; N. Y. Centra., 164@164½; Hudson, 137; Reading, 94½; Norwich & Wor. R. R., ..; Boston W., 15½; Mich. S. N. I. R, 92½; Ill. Cent. R., 138½@139; Chicago & Northwestern, 83½; Cleveland, Columbus Cin. and Ind., 48; Chicago & N. W. Pf., 82½; M. & St. P., 64½; do., Pref., 78@79½; N. J. Central R., 113½; Morris & Essex, 87; Clev., Col. & In. C., 52; P. Ft. W., Chicago & Rock Island, 117½@117½; Alton & Ter. H., 40; Ohio & M. R., 36; do., Pref., 75½; H. & St. Jos. R., 110½; T. W. & West, bct. call, 63½.

State, R. R. and Other Bonds.—Tenn St 6's, new, 67½; Tenn. St. 6's, ex cpn., 67; Va. State 6s, ex coup., 56½; Conn. 6s, 100; Georgia 7s, 92½; N. Carolina St. 6's, new, 62½; Ala. State 8s, 94; N. Y. Cent. 6s, '83, 91; Erie 3d, 92; Chi. & N. W., con. conv'e, 94½; Tol. & W. 1st m., ext'd, 91½; do., 2d m., 84; G. W. 2d, 78½; C. & R. I. and P. R. R. 7s, 94; Morris & Essex 2d, 90; Cleve. & Pits., 4th, 75; M. & E. 1st, 97½; Mil. & St. P. 2d M., 84; Col. C. & Ind. Cent. 1st, 85¼@86; St. Louis & I Mt. R. R., 1st m., 84; Mil. & St. P. 8s, 1st m., 103; Mil. & St. P., 1st m., 92; Metropolitan Bank, 140; Fourth National Bank, 103½.

Government Bonds.—United States bonds continue very active and firm, prices being again higher. Five-twenties at London are reported this morning at 77½ @ 77¾. This remarkable firmness of bonds in London and Frankfort is attributed. by bankers here in constant correspondence with those markets, to an improving confidence in American securities, arising from the more conservative tone of Congress, and the expectation that General Grant's administration will be characterized by retrenchment and a general conservatism of the public credit. Prices are quoted:—

U. S. 6s, 1881, coupon	113½@113½	U S 5-20s, '65, new coup.	110 110½
U. S. 5-20s, 1862, coupon.	114½ 114½	U. S. 5-20s, 1867, coupon.	110½ 110½
U. S. 5-20s, 1864, coupon.	111½ 111½	U. S. 5-20s, 1868, coupon.	109½ 109½
U. S. 5-20s, 1865, coupon.	112½ 112½	U. S. 10-40s, ex. coupon...	101½ 101½
6 Per Cent. Bonds, P. R. R.	109½ 110		

Foreign Exchange.—Foreign exchange is again lower, under the free supply of bills made against bonds. We quote.

Lon. (pr. bks), 60 dys	109½@ 109½	Swiss	5.18¾ 5.17½
Lon. (pr. bks'), sight	109¾ 109¾	Hamburg	36½ 36½
London, prime com		Amsterdam (bankers')	40½ 41
Paris (bankers'), long	5.17½ 5.16½	Frankfort (bankers')	40½ 41
Paris (bankers'), short	5.15 5.13¾	Bremen (bankers')	78¾ 78¾
Antwerp	5 18¾ 5.17½	Berlin (bankers')	71½ 71½

Gold.—Is firm at 135¼@135¾. The loaning rate ranged to day at 4½@7 "for carrying."

Money continues steady, at 7 per cent. for call loans on stocks, and 6 per cent. on Governments. Discounts are unchanged, prime paper being current at 7@9 per cent., little being done at the lower figure.

The stock market shows considerable animation and buoyance, although transactions are limited.

In the miscellaneous list the most prominent feature is the activity in Mariposa Trustees' Tens Certificates, which sold at an advance of 5 per cent. on the best prices of yesterday; the stocks of the company remains strong at the late advance. The rise in these securities is attributed to advices to the effect that the first mill on the estate made sufficient net profit in January to pay the interest on the certificates.

Petroleum.—Crude in bulk is quiet, and difficult to place at 22½@23. Refined standard white—There is less inquiry at 38c.; a cargo is reported sold at 37½c. For Philadelphia delivery, refined standard white is firm with less business; we quote at 38¼c. for delivery the balance of the month; the sales are 1,000 bbls. for February at 38¼c.; 500 bbls. for Februry at 38½c. 500 bbls. for March at 38¾c.; 1,000 bbls for April and May at 39c.; and 1,500 bbls. for March, April and May at 38c.

Exports for the week ending Feb. 9	galls.	790,613
Exports from Jan. 1	galls.	4,464,053
Exports same time last year	galls.	4,551,305

The following is the quantity exported from other ports, Jan. 1 to Feb. 6:

	1869.	1968.
From Boston, galls.	285,568	281,681
Philadelphia	2,034,583	2,605,129
Baltimore	54,361	82,750
Portland	....	6,800
Cleveland	....	....
Total	2,374,512	2,976,360
Total exports from the United States	6,997,104	7,564,023
Same time in 1867		4,141,237
Same time in 1866		6,768,401

We notice the following vessels loading here for Europe:—

Ship Ladoga, Cronstadt	5,600 bbls.	Ref.
Bark Blue Nose, Continent	4,000	do.
Ship Bessie North, Antwerp	4,000	do.
Bark T. K. Weldon, Marseilles	2,750	do.
Brig Amy, Catania	1,100	do.
N. G. ship Reichstag, Bremen	5,200	do.
Schr. Spera, London	800	do.
Bark Fred. Scalla, Stockholm	2,600	do.
Bark Eclipse Liverpool	13,000	cases.
Bark Star of Devon	6,500	do.

The following vessels are loading at Philadelphia:

Pruss. bark Der Turner, Continent direct	7,000	bbls.
Bark Gostrene, Baltic	3,500	do.
Ship Northern Queen	5,500	do.
Br. brig Speed, Elsinore, for orders	2,100	do.
Pruss. ship Helois, Continent	5,400	do.
Br. bark Black Brothers, continent	5,000	do.
Pruss. bark Meridian, Bremen	3,597	do.
Bark Woodland, Continent	3,000	do.
Bark Edwin, Gibraltar	15,000	cases.

Copper has been in good demand, with sales of 1,500,000 pounds at 26¼@ 26¾c. for Baltimore, and 26¼@27c. for Lake Superior. For March delivery ¼ of a cent more has been paid. Since the tariff bill passed the House little has been done as holders are not offering. The smelters of the Atlantic States have almost ceased operations, and at Lake Superior the production has been very small during the winter. The consumption is good, and there is every prospect of a still further rise in the price.

The London market is firm at £74 10 for Chili Bars.

Tin is steady. About 1,000 slabs Straits have been sold on private terms. The nominal quotation is 31½c. for Straits, 32½c. for Banca, and 30c. for English. 5 tons of the latter sold at this figure.

The importations for January amount to 7,700 slabs Straits, and 95 tons English. From the East Indies, 4,500 slabs are over due, and 8,000 slabs more are expected to arrive in April and May, all sold.

The supply for the Spring trade is thus very small, and it is probable that we shall have to draw a little Straits from England, although our prices are still 10 per cent. below the cost of importation from there.

The stock is all in speculators' hands, viz., 10,500 slabs Straits.
1,200 " Banca Billiton.
and 50 tons English, equal to 1,500 "

Total New York and Boston	13,200 slabs.	
Against	11,900 "	1st February, 1868
	26,200 " " "	1867
	22,600 " " "	1866

The production of England and the East Indies for 1868 is estimated at 19,600 tons against 21,500 tons in 1867; the consumption of Europe and America last year has, on the other hand, increased to 22,500 tons against 21,500 tons in 1867. The stocks in London and Amsterdam, including the expected arrivals, amounted on the 1st of January to 8,000 tons, against 10,100 last year, and 11,800 tons in 1867.

The consumption of Tin plates as well as the raw material is likely to be still more stimulated by the introduction of tin cans and cases for the transportation of Petroleum now coming into use.

The London market is firm at £114@£115 sterling for Straits.

Lead.—The price is steady at $6 30@$6 37½ for ordinary foreign, with a moderate demand from the trade.

Importations during the last month 2,850 tons and deliveries to the trade 3,250 tons, stock 1,100 tons.

Against 3,800 tons on the 1st of February,		1868.
" 2,000 " " "		1867.
" 2,700 " " "		1866.

Spelter.—Sales of 100 tons Silesian reported at $6 45@$6 50, gold. Importations of January 600 tons, and the stock 350 tons, against 550 tons on the 1st of Febrnary, 1867, and 1,100 tons on the same date of 1866.

Regulus Antimony.—Is lower, with sale of 10 casks at 12½@12¾c., gold.

Bismuth—$6 to 6 50, gold.

Nickel—1¼ to 2¼ per lb.

THE IRON TRADE.

NEW YORK, February 12, 1869.

The market for Pig Iron of all kinds remains quiet, and prices continue high, though we think there is a little more disposition to operate. We note sales of 3,000 tons of No 2 Foundry, season's delivery, on private terms, and 1,700 tons on dock, Gray Forge, at $35 at furnace. No. 1 Iron is in less request and quiet at $39@$40.

Scotch, with extremely light stock, remains quiet, and prices are but nominal. We hear of no transactions of moment.

Scrap Iron is quiet, and no sales.

Old Rails continue very quiet and with but little inquiry. We note sales of 1,000 tons old D. H., southern delivery, at $49, cash.

There is, perhaps, a little more demand for Bar from Store, at our quotations—we hear of no invoices offering. Common Sheets may be quoted 5½ @7c. for Single, Double, and Treble.

BOSTON, February 10, 1869.

The market is marked by great quietness, and the transactions are of very limited extent. Some lots of Pig are thrown on the market by consumers, and hence some sales have been made at figures under ruling prices. With the exception of such transactions, the tone of the market is firm, and holders are unwilling to make the concessions that buyers are looking for. At the present time the sales are scarcely of amount enough to determine the market, but the indications are that prices will be pretty well sustained. Consumers will, however, if obliged to, pay the present rates with reluctance, as it is felt that the manufacturing interests of the country will be advanced by a decline. Uncertainty marks the future course of trade, and in the difference of views taken by intelligent observers, we think that consumers will not lose by deferring their orders, as it is not likely that prices will advance. Scotch Pig Iron is in small supply, and held at $41 to $44. Bar Iron is in somewhat improved demand, and prices are a shade firmer.

PHILADELPHIA, February 10, 1869.

There is a stronger feeling in the Iron market, and more business has been done. There is more disposition to regard present prices as more likely to be maintained than heretofore, and sales are reported of Pig Iron for future delivery of some 3,000 tons at $40 for No. 1 Foundry, and $37 to $38 for No. 2; also sales of some 2,000 tons at prices to be fixed each month of delivery. We notice, also, smaller sales of Lehigh Crane, No. 1 at $40, and No. 2 Foundry at $38, and 1,500 tons Forge at $36. Scotch Pig is dull, and held at $42 @$43.

Bars are unchanged, and held at $85@$85 50 for Refined, and $77 50@$80 for Common.

Lehigh Valley Iron Trade.

Pig Iron transported by the Lehigh Valley Railroad Co. for the week ending Jan. 30, 1869:

From	Tons.	Total.
Carbon Iron do	190	9,070
Lehigh Valley Iron Co	270	10,910
Thomas Iron do	335	36,725
Lehigh Crane Iron do	100	32,585
Allentown Iron do	245	35,475
Robert Iron do	145	10,630
Glendon Iron do	855	25,029
Other Shippers	590	20,656
Total	2,730	181,079

Imports of Foreign Iron and Steel at New York.

For the week ending Feb. 5.

	Quantity.	Value.
Railroad Iron, bars	6,797	$34,604
Hoop, tons	40	1,781
Sheet, tons	22	1,163
Pig, tons		
Other Iron, tons	967	22,127
Chains and Anchors, packages	340	10,747
Tubes, packages		
Nails, packages		
Steel, packages	2,095	32,052
Machinery	546	26,249
Pipes	....	4,374
Anvils	40	398
Wire		
Total value		$133,475

Market Prices.

NEW YORK, Feb. 12, 1869.

DUTY.—Bars, 1 to 1½c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate: 1½c. per lb.; sheet, band, hoop and scroll, 1½ to 1¾c. per lb.; pig, $9 per ton, polished sheet, 3c. per lb. Payable in gold.

Am. pig, fy. No 1, best	$39 00@40 00	
" " 2x frdy	36 00	38 50
" Grey Forge	35 00	36 00
White and Mottled	32 00	35 00
Pure white for Cal. mar.	32 50	— —
Scotch Pig, No. 1, best bd	41 00	42 00
" " outside	40 00	— —
Wt. No. 1Scrap f'm yd	....	45 00
Ex ship	43 00	....
Bar, Ref., En. & Am	90 00	95 00
Bar, Sw's, as. sizes, gold	82 50	87 50
Old Rails	47 00	....
R. R. Iron, For., fm Stock		
gold	54 50	55 50
R. R. Iron For., to imp.	55 50	60 00
" " Amer. at wks.		
currency	76 50	— —
R. R. Iron, Am., deliv'd	80 00	81 00
Stl rails of any pattern at		
works, currency		
Solid Steel rls. For., gd.	95	— —
Street Rails at works	85 00	— —
Light rls. for mines &c.		
at works	$85 00@	— —
Do. delivered here	....	— —

STORE PRICES.

Bar, Swades, ord'y sizes	— —	145 00
Bar, Eng. and Am., rf'd.	90 00	92 50
Bar, Eng. & Am., com.	85 00	90 00
Scroll	125 00	160 00
Ovals and half round	122 50	150 00
Band	125 00	— —
Horse Shoe	125 00	— —
Rods, ⅜@3-16 inch	100 00	160 00
Hoop	135 00	185 00
Nail Rod, per lb	8½	10
Sheet, Rus. as'd. Nos. (gold)	10¼	11¼
Sheet, s'gle. D & T. com	5½	7
Rails, Eng., gold, ton	55 00	56 00
Rails, American	74 00	76 00

STEEL.

English, cast 2d & 1st qual	18	@22
Eng. Spring 2d & 1st qual	10	11½
Eng. Blister 2d & 1st qual	11½	19
English Machinery	12½	15
Eng German 2d & 3d qual	14	16
Am. Blister, "Black Diam'd,"	10½	16
American, Cast, Tool "	19	—
American, Spring "	10	13
American Machinery "	—	13
American German "	10	13

PITTSBURGH, February 6, 1869.

The *Commercial* reports the receipts of raw more liberal but principally absorbed by deliveries on sales of a fortnight ago to arrive. There is scarce any accumulation of stock in commission hands, and prices are well sustained for all descriptions of standard irons. Sales of the week have been somewhat restricted from want of desirable medium grades of both foundry and forge descriptions. The sales for the past two weeks were as follows:

	Last Week.	This Week.
Bituminous	27,500 tons.	1,894 tons.
Anthracite	1,220 tons.	1,130 tons.
Alleghany Coke	1,400 tons.	100 tons.
Charcoal R. H.	.... tons.	155 tons.
Total	29,120 tons.	3,179 tons.
Blooms	...	...

The following sales are reported:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORES.

500 tons Foundry, to arrive	$39 00—4 mos
300 tons Open Gray Forge, to arrive	38 75—5 mos
100 tons Open Grey Forge, to arrive	39 00—4 mos
500 tons Close Inferior Forge, at Furnace	priv. terms.
300 tons Mottled and Close Grey, to arrive	37 25—cash.
50 tons White and Mottled	37 00—cash
114 tons Foundry	40 00—6 mos

CHARCOAL.

30 tons Hanging Rock Foundry	45 00—6 mos
125 tons Hanging Rock Foundry	44 50—4 mos

ANTHRACITE.

70 tons No. 1 Anthracite	43 00—4 mos
80 tons No. 3 Anthracite	39 50—cash
70 tons White at furnace	30 00—cash
100 tons Neutral Forge	40 00—4 mos
100 tons No. 3 Grey Forge	38 50—cash
50 tons No. 2 Foundry	41 00—cash
50 tons Inferior Grade	37 00—6 mos
300 tons No. 2 Neutral Forge, to arrive	42 00—4 mos
256 tons Close Grey and Mottled, to arrive	38 00—60 d's

ALLEGHENY COKE.

100 tons Red Bank	38 00—6 mos

We have no change to note in the card rates of iron and nails. The mills have been fairly supplied with orders, and manufacturers are anticipating a good spring trade and generally running their works full time.

IRONTON, OHIO, February 4, 1869.

The Ironton *Register* says:—Firmness and low stocks characterize the metal market. For some time yet holders of metal anticipate sufficient business at quoted rates, and consequently evince no disposition to meet any kind of proposition at lower figures. Some brands of foundry are offered at $40 cash, but $41 may be considered the ruling rate, while $42 on reasonable time is offered by holders. We quote:

Mill	$36 00@	$38 00
Foundry, Hot Blast	40 00	42 00
Cold Blast	55 00	56 00

Orders for manufactured iron at 3½c. to 4c., rates are plentiful. Prices are firm. For hoop iron there is a constantly increasing demand.

Nails are very active. No change in rates. Card prices remain at $5 for 10d., but reduced figures control the trade. The present shipment of nails exceed their manufacture. During the week ending yesterday, 4,400 kegs were sent by river. For the month of January the shipments were 6,000 kegs, exceeding those for the same time last year by about 5,000 kegs.

MILWAUKEE, Wis., February 5, 1869

PIG IRON

Prices this week are quoted—

Buffalo Union, A 1	$49 00	Lake Superior No 3 (charcoal)	46 00
Buffalo Union, B 1	46 00	Iron Ridge, No 1 (Sweed's)	40 00
Lake Superior No 1 (charcoal)	47 00	Scotch	50 00@53 00
Lake Superior No 2 (charcoal)	46 00		

MANUFACTURED IRON.

Flat Bar	$0 3½@0 4½		Round and Square	3½	7½
Horse Shoe	5	5½	Oval	4½	5
Heavy Band	4½	5½	American Spring Steel	11½	13½
Hoop and Light Band	5	10	Plough Steel	11½	18½
Eagle Sheet Iron	6½	9½	Am. Tool Steel (best)	..	17½
Boiler Sheet Iron	5½	6½	Nails, $5.		

CINCINNATI, February 8, 1869.

PIG.—Demand strong, but with very light receipts.

	Per ton. Days		Per ton. Days
Hanging Rock H. B. Mill	$41 42—90	Tennessee Cold Blast	45 47—90
Hanging Rock H.B. F'dry	44 45—90	Missouri	50—90
Hanging Rock Cold Blast	53 55—90	Blooms	100 105—90
Hanging Rock Car Wheel	55 60—90		

THE COAL TRADE.

NEW YORK, Feb. 11, 1869.

We do not find anything encouraging in the coal trade this week.

Coal is plenty, there being, it is said, some 40,000 to 50,000 tons in the market.

There is little or no demand. Those that are buying limit their orders to the smallest possible quantities.

The circular of the Pennsylvania Coal Company caused a depression in stove size, and a decline of from 25 to 30 cents. The other sizes, though not firm, are unchanged.

Freights remain unchanged. New Haven about $1 25. Boston not over $3 00.

Dealers and others interested in gas coals are requested to examine the advertisement of the Pinnakinnick Coal Company, in our columns this week. The following explains itself:

OFFICE OF THE LEHIGH COAL AND NAVIGATION CO., 80 BROADWAY, NEW YORK, February 10, 1869.

For the present the following prices have been fixed for "Old Company's Lehigh Coal," delivered at Hoboken, N. J.

The Company reserves the right to advance same, at any time, except on contracts made prior to such change.

All sales subject to the usual conditions.

Lump	$6 50
Broken	5 25
Egg	5 25
Stove	6 25
Chestnut	5 25
Pea	

WM. H. TILLINGHAST, Agent.

So does this:

OFFICE OF THE WILKESBARRE COAL & IRON CO., 80 BROADWAY, NEW YORK, February 10, 1869.

Wilkesbarre Coal. For the present the following prices are fixed for coal delivered at Hoboken, N. J.

The company reserves the right to advance same, at any time, except on contracts made prior to such change.

All sales subject to the usual conditions.

Lump	$5 25
Steamer	5 25
Broken	5 25
Egg	5 25
Stove	6 00
Chestnut	5 00

WM. H TILLINGHAST, Treasurer.

BUREAU OF STATISTICS, TREASURY DEPARTMENT, U. S. A., WASHINGTON, D. C., Feb. 10, 1869.

EDITOR JOURNAL OF MINING:

SIR—The quantity and value of coal imported into and exported from the United States, during the fiscal year ended June 30, 1868, was as follows:

Bituminous, tons	396,128	$1,280,824
Other, tons	102	532
Total	396,230	$1,281,356

FRANCIS A. WALKER, Dep'y Sp'l. Com. of Revenue.

PHILADELPHIA, February 10, 1869.

The market is still unsettled, and prices are ruling lower. Some of the mines in the Schuylkill region are starting up. Freights are lower to Boston and Rhode Island. In the Lehigh region the strike still continues. The miners refuse to work at present prices, fearing, if they refuse to work, that there will be a further reduction.

The following table exhibits the amount of Coal that was passed over the various routes of transportation from the Pennsylvania Coal districts for the week ending Feb. 6, 1869, and for the season to that date. A comparison is also made with the amount transported the corresponding week in 1868, showing the increase or decrease, as the case may be:

COMPANIES.	1868. WEEK.	1868. TOTAL.	1869. WEEK.	1869. TOTAL.	INC. OR DEC. WEEK.	INC. OR DEC. YEAR.
Phil. & Read. R. R.	35,389	349,996	38,742	324,761	i 3,353	d 25,235
*Schuylkill Canal.	....	....	....	....	....	....
Lehigh Valley R. R	31,345	337,121	39,668	362,181	i 8,322	d 25,060
Lehigh & Sus. R. R	3,363	25,881	13,508	94,178	....	i 67,797
*Lehigh Canal	....	....	....	....	....	....
Scranton North	6,781	46,596	8,926	48,721	i 2,141	i 21,125
Scranton South	20,058	110,640	31,473	149,915	i 11,415	i 39,274
Penn. Coal Co. rail.	9,340	61,646	13,448	82,061	i 4,108	i 20,415
*Penn. Coal Co. can.	....	....	....	....	....	....
*Del. & Hud'n Can.	....	....	....	....	....	....
Shamokin	5,189	28,575	7,515	36,126	i 2,325	i 7,551
Trevorton	505	2,903	485	2,642	d 20	d 261
Short Mountain	492	3,292	604	3,309	i 448	i 018
Lykens Valley Co.	1,685	8,521	....	3,156	d	d 5,364
Hunt'g'n & B'd T'p	2,350	11,244	6,292	30,977	i 3,942	i 19,733
*Wyoming South.	....	....	....	....	....	....
*Wyoming North.	....	....	....	....	....	....
Williamstown Col.	882	13,830	2,032	11,672	i 1,149	d 2,158
Total	117,379	1,090,245	164,090	1,149,699		
1868			117,379	1,090,245		
			i 46,711	i 149,454		

*Close.

Report of Coal Transported over Lehigh Valley Railroad

For the week ending February 6, 1869, and previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
WYOMING REGION.		
Franklin Coal Co	1,453 11	11,766 02
Audenried	....	....
Lehigh and Susquehanna	....	....
Germania Co	....	....
Wilkesbarre Coal & Iron Co	....	595 15
Warrior Run	367 10	3300 17
Parrish & Thomas	1,014 17	2,570 18
New Jersey	347 12	2,335 06
Union Coal Co	....	....
Wyoming Coal & Transportation Co	124 04	8,394 04
Newport Coal Co	....	....
Morris & Essex Mutual Coal Co	....	....
Consumers	....	....
Everhart Coal Co	....	....
Plymouth Coal Co	....	....
Hillman & Son	526 08	3,527 08
Bowkley, P & Co	....	....
Mineral Spring	696 03	4,798 11
Valley Coal Co	....	....
Enterprise Colliery	2,825 11	16,290 06
Burroughs	1,065 13	6,263 06
Washington Coal Co	....	....
West Pittston	....	....
Barclay Coal Co	....	....
Shawnee	253 19	3,113 02
Consumers Coal Co	318 06	2,714 16
Harvey & Bro	83 06	410 02
Wyoming Valley	246 07	3,977 07
Henry Colliery	....	....
Chas. Hutchinson	84 13	84 13
Fall Creek	....	....
New England	261 07	3,081 19
Delaware & Hudson Coal Co	609 10	2,046 00
Maltby Colliery	206 17	1,269 10
Gaylord Colliery	....	....
Chauncey Colliery	153 16	3,963 08
Ravine Colliery, P & E	....	....
Butler, H S M	....	....
Maryland Anthracite	....	415 11
Butler Colliery	341 05	2,922 03
Tompkins	....	....
Rough & Ready	....	291 06
Rock Tunnel	....	....
Other Shippers	....	29 06
Total Wyoming	12,014 02	85,232 02
Same time last year	4,738 02	46,351 05
Increase	7,276 80	38,880 17
Decrease	....	....
HAZLETON REGION.		
Central Coal Co	....	....
Ashburton Colliery, R. R. Carter	220 12	4,407 10
Mount Pleasant	331 12	2,189 08
Hazleton	3,093 10	32,344 09
Stockton—East Sugar Loaf	2,348 15	27,310 04
Mount Hall	....	....
Latimer (A Pardee, Jr., Bro & Co.)	911 16	12,875 15
Stout Coal Co	376 00	8,625 03
Harleigh	2,377 00	16,147 01
Evervale Coal Co	1,196 08	14,662 12
Jeddo, (G B M & Co)	4,060 16	23,749 00
Woodside, J C Co	484 11	2,246 10
Highland Coal Co	....	4,347 07
Cross Creek	866 09	6,746 01
Council Ridge	3,269 08	20,030 11
Buck Mountain	1,333 12	11,644 09
Other Shippers	....	114 10
Total Hazleton	20,870 09	188,350 10
Same time last year	15,012 05	167,811 03
Increase	5,858 04	20,539 07
Decrease	....	....
UPPER LEHIGH REGION.		
Upper Lehigh Coal Co	782 09	3,477 14
Same time last year	668 15	12,455 17
Increase	113 14	....
Decrease	....	8,978 03
B. M. REGION.		
B. Meadow, D. W	....	61 01
Spring Brook	209 13	10,511 09
Honey Brook	467 04	16,573 11
German Pa. Coal Co	770 10	5,502 19
Spring Mountain	841 08	21,641 13
Coleraine	974 10	14,727 45
Stafford D W	53 11	368 10
John Connery	....	....
Lehigh Zinc Co	....	....
Other Shippers	11 11	104 09
Total B M Region	3,328 07	69,490 17
Same time last year	5,279 14	53,688 19
Increase	....	15,821 18
Decrease	1,951 07	....
MAHANOY REGION.		
Mt Rose Coal Co	....	261 00
Mount Etna	....	....
Mahanoy Colliery	....	181 02
Coplay Colliery	716 04	2,263 13
Glendon Colliery	487 12	1,460 08
Primrose Colliery	671 19	4,820 15
E S Silliman	....	1,140 04
McNeal Co	....	1,065 07
Knickerbocker	....	60 16
Thomas Coal Co	....	....
Mammoth Vein	5 00	253 04
New Boston Coal Company	119 02	1,820 16
Shamokin Coal Company	....	....
Caledonia M & M	672 14	1,625 17
Coal Mountain	....	....
Coal from Catawissa Railroad	....	....
Other Shippers	....	9 17
Total Mahanoy	2,672 10	15,597 18
Same time last year	5,646 18	56,833 13
Increase	....	....
Decrease	2,974 08	41,235 15

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.	PREVIOUSLY Tons. Cwt.
Total Mahanoy	2,672 10	15,597 18	12,925 08
Total B. Meadow	3,328 07	69,490 17	66,162 10
Total U. Lehigh	782 09	3,477 14	2,695 05
Total Hazleton	20,870 09	188,350 10	167,480 01
Total Wyoming	12,022 08	85,232 02	73,218 00
Total M. Chunk		32 03	32 03
Total Anthracite	39,667 17	362,184 03	322,513 07
Susquehanna region Bit.Coal, F. C'k.		552 03	552 03
To L. & S. R., at Penn Haven for r'l.	5 12	4,174 00	4,168 08
Do. for Canal		4,184 06	4,184 06
At Mauch Chunk for canal		2,259 07	2,259 07
Total by rail and canal	39,673 09	373,351 00	333,677 11
Same time last year	33,157 05	343,448 11	310,291 06
Increase	6,516 04	29,902 09	23,386 05
Decrease			....
Forwarded east from M. Chunk by r'l	35,479 19	348,219 17	312,538 18
Same time last year	31,345 14	337,120 17	305,775 03
Increase	4,134 05	6,964 15	6,964 15
Decrease		....	....

RECAPITULATION.

Forwarded east from M. Chunk by r'l	35,479 19	348,219 17	312,739 18
Delivered at Mauch Chunk	44 16	276 01	231 02
Del. on line of r'd above M. C'k	186 16	2,350 00	2,163 04
Del. ab. M. C. for use of L. V. railr'd.	3,854 04	11,036 19	7,182 15
To L. & S. r'd at Penn Haven for rail	5 12	4,174 00	4,168 08
Do. for shipm't by canal		4,184 06	4,184 06
At Packerton	102 02	850 10	748 08
At M. Chunk for shipment by canal		2,259 07	2,259 07
Total	39,673 09	373,351 00	333,677 11

Lehigh and Susquehanna Railroad.

Report of Coal shipped for week ending Feb. 6, 1868.

WHERE FROM	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
WYOMING REGION.		
Newport Coal Co	....	
Albrig'ton, Roberts & Co		
New England Coal Co		
Morgan Mines	....	
Warrior Run Mining Co	....	
Parrish & Thomas	744 08	3,262 04
New Jersey Coal Co	244 08	1,707 01
Gaylord Mines	....	
Delaware & Hudson Canal Co	1,310 19	3,845 04
Lehigh & Susquehanna Coal Co	....	
Germania Coal Co	392 02	1,456 02
Franklin Coal Co	....	
Audenreid Improvement Coal Co	....	
Wilkesbarre Coal & Iron Co	2,204 06	27,798 15
Union Coal Co	....	
Mineral Spring Coal Co	160 13	2,140 15
H. B. Hillman & Son	102 09	660 12
Bowkley, Price & Co	....	633 00
Wyoming Coal & Transportation Co	53 03	823 12
Henry Colliery	....	1,545 07
J. H. Swoyer		
Everhart Coal Co	360 16	3,543 10
Morris & Essex Mutual Coal Co	....	
Shawnee	182 16	723 05
Pine Ridge Colliery	116 04	1,470 04
Lances Colliery		
Consumers Coal Co		
Harvey Brothers	....	
Lehigh & Luz. Coal Co	826 06	4,068 17
Other Shippers		
Total Wyoming Region	6,698 10	58,780 02
UPPER LEHIGH REGION.		
Upper Lehigh	3,319 17	16,110 12
Other Shippers		
Total Upper Lehigh Region	3,319 17	16,110 12
HAZLETON REGION.		
A. Pardee & Co	49 07	151 07
Linderman & Skeer	....	
Sharpe, Weiss & Co		
Wm. S. Halsey & Co	16 00	74 18
Harleigh Coal Co		58 13
G. B. Markle & Co	31 09	76 11
Ebervale Coal Co		27 01
Stout Coal Co		51 13
Buck Mountain Coal Co		
Coxe Brothers & Co	27 18	55 02
Ashburton Coal Co	....	
Highland Coal Co		
Pardee Brothers & Co		
Jeddo Coal Co	....	73 10
Mount Hall (J. S. S.)	....	
R. R. Carter	....	16 18
Other Shippers	....	73 14
Total Hazleton Region	124 09	657 07
MAUCH CHUNK REGION.		
Lehigh Coal & Navigation Co	....	
Summit Mines	4,591 02	17,762 04
Room Run Mines	773 11	5,866 03
Other Shippers	....	
Total Mauch Chunk	5,364 13	23,628 07
" Mauch Chunk Region	5,364 13	23,628 07
" Hazleton	124 09	659 07
" Upper Lehigh	3,319 17	16,110 12
" Wyoming	6,698 10	58,780 02
Grand Total	15,507 09	94,178 08
Corresponding week last year	3,362 12	25,881 10
Increase	12,145 00	67,796 18
Decrease	....	....
Forwarded South from Mauch Chunk by Rail	13,765 01	86,378 09
Delivered on line of L. & S. R. R. ab've M'ch C'k	1,742 08	7,799 19
Delivered at Coal Port for shipment by canal		....
Total	15,507 09	94,178 08

Schuylkill Coal Trade.

BY RAILROAD AND CANAL, FOR WEEK ENDING, FEB. 11, 1869.

	RAILROAD.	CANAL
St. Clair	22,983	....
Port Carbon	6,861	....
Pottsville	1,555	....
Schuylkill Haven	4,334	....
Auburn	209	....
Port Clinton	8,158	....
Company's use	4,783	....
Total for week	47,883	....
Previously this year	324,761	....
Total	372,644	
Same time last year	385,385	
Decrease	12,741	

Cumberland Coal Trade.

By B. & O. RAILROAD.—The shipments over the Baltimore and Ohio Railroad, for the week ending Feb. 10, were as follows:

From Cumberland and Pa. Railroad, via Cumberland	
Consolidation Company	706 01
Borden	976 12
Allegany	30 04
Midland	485 04
American	....
From George's Creek, via Piedmont.	
George's C. & I Company	1,485 02
Central	2,270 12
Atlantic	856 00
Savage Mt	71 13
Swanton	226 11
Potomac	714 17
Piedmont	726 05
Franklin	671 05
Hampshire	696 16
American	
Barton	778 17
From Eckhart RR.	
C. & I. Co.	647 04
Total	11,435 17

Increase over corresponding week of last year, 5,143.04 tons.

The Coal production for the first month of the present year, shows a handsome increase over the corresponding month of last year, notwithstanding the fact that several of the companies are engaged in making repairs and improvements for the Spring and Summer trade. The quantity dispatched over the Cumberland & Pennsylvania Road during the last month was 54,693.02 tons while in January, 1868 it amounted to but 27,927.02—increase for the month. 26,766 tons. The increase for the same period, from the Cumberland C. & I. Co's mines, was 6,410.04 tons. Aggregate increase, 33,170.04 tons.

Relative to Canal Tonnage the *Alleghanian* says:—"The owners of boats on the Chesapeake & Ohio Canal, residing in Williamsport and vicinity, held a meeting recently, at which resolutions were passed similar to those previously adopted at a meeting of the boatmen here. While assuring coal shippers that their object is not to organize a monopoly or combination that might be injurious to the interests of the former, they assert that, in view of the prevailing high prices of provisions, food and labor, the rates of freight paid last year do not afford adequate remuneration, and notify the Companies that necessity compels them to ask a considerable advance on those rates."

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, Feb. 13, 1869.

Schuylkill R. A., choice	$....	Schuylkill Chestnut	$....
" Ordinary	....	Lehigh W. A. L'p old Co	6 50
" W. A. Lump	....	" Broken	5 25
" Steamboat	....	" Egg	5 25
" Broken	....	" Stove	6 25
" Egg	....	" Chestnut	5 26
" Stove	....	Shamokin	5 50

SPECIAL COALS.—DEALERS' QUOTATIONS.

Diam'd Vein R.A., Sch'kill	....	....	Old Co.'s W. A. Lehigh	6 25	7 50
Locust Dale W. A., "	....	....	Mt. Pleasant	6 25	7 50
Honey Brook " Lehigh	6 00	7 25	Buck Mountain	6 25	7 50
Harleigh " "	6 00	7 25	Buck Ridge W.A., Sh'kin.	7 25	....
Spring M'n " "	6 00	7 25	H. Hells, E. F'klin, Lorb.	7 25	....
Sugar Creek " "	6 00	7 25	New England Red Ash	7 00	....
Sugar Loaf " "	6 00	7 25	Wyoming	7 00	....

Dealers in these Coals may be found in our advertising columns.

At Philadelphia, Feb. 13, 1869.

Lehigh L'p and St'mb't	6 50	6 75	Locust Mount Lump	5 50	6 00
" Broken and Egg	6 75	7 25	" Steamboat	5 50	6 00
" Stove	7 75	8 00	" Broken	5 50	6 00
" Chestnut	6 00	6 25	" Egg	5 50	6 00
Schuylkill R. A	5 75	6 00	" Stove	....	7 00
" Chestnut			Lorberry Coal	7 00	8 00
" W. A. Lump			Shamokin	6 00	7 00
" Broken			Franklin, (Lykens Val.)		
" Egg and Stove			Broad Top	....	6 00
" Chestnut			Burnside R. A	7 00	....
Hill & Harris, Egg & St			Powelton Coal Co	7 00	
Henry Clay, Egg & St	6 00	7 00			

Scranton Coal at Elizabethport, Feb. 13, 1869.

(Corrected weekly by D. L. & W. R. R. Co.

Lump	4 75	....	Egg	5 50	....
Steamer	5 25	....	Stove	7 00	....
Grate	5 50	....	Chestnut	5 50	....

Prices for Pittston Coal at Newburgh, Feb. 13, 1869.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton, 2240 lbs	4 50	....	Egg " "	....	4 60
Steamer, " "	4 50	....	Stove " "	....	4 90
Grate " "	4 50	....	Chestnut " "	....	4 40

70c. additional to New York.

Lackawanna at Rondout, Feb. 13, 1869.

Lump	4 50	....	Egg	6 75	....
Steamer	4 50	....	Stove	7 25	....
Grate	4 50	....	Chestnut	6 00	....

65 cents additional to New York.

Lehigh Coal at Elizabethport, Feb. 13, 1869.

Lump	6 50	....	Stove	7 25	....
Steamboat and Broken	6 00	....	Chestnut	6 00	....
Egg	6 00	....			

Wilkesbarre Coal at Hoboken, Feb. 13, 1869.

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	5 25	....	Egg	5 25	....
Steamer	5 25	....	Stove	6 00	....
Broken	5 25	....	Chestnut	5 00	....

At Baltimore, Feb. 13, 1869.

Wholesale prices to trade.			Trevorton R. A	$....	....
Wilkesbarre by cargo or car load	$7 00	@7 35	By retail, per ton of 2,240 lbs., delivered	9 00	9 75
Pittston and Plymouth	6 75	7 25	Georges C'k & Cumberland f. o. b. at Locust Point for shipping	....	5 00
Shamokin R., or W. Ash	6 75	7 00			
Lykens Valley, R. A	....	7 35			

At Havre de Grace, Md.

Cargo prices for shipment *south* of Patapsco River, (drawback allowed of 10 per centum.)			Shamokin R. or W. Ash	$....	@....
			Lykens Valley R. A	....	....
			Trevorton R. A	....	....
Wilkesbarre and Pittston W. Ash	$....	@....			

At Georgetown, D. C. and Alexandria, Va.

George's Creek and Cumberland f. o. b. .... @4 75

These are the closing rates. Trade is suspended for the season and will be resumed upon the opening of the C. & O. Canal in March next.

Prices of Gas Coals.

February 18, 1869.

PROVINCIAL. Duty, $1 25	Coarse. Gold.	Slack. Gold.	AMERICAN.	Coarse. Currency.	Slack.
Block House	$1 75 @	$ 75	Westmoreland Co	$8 50	$6 00
Gowrie	1 75	75	Despard Coal Co	8 50	8 00
Lingan	1 75	75	Penn	8 50	8 00
Sydney	2 13½	71½	Newburgh Orrel Gas	8 50	8 00
Pictou	2 13½	1 18½	Delivered in New York.		
Little Glace Bay	1 75	1 00	West Fairmont Gas Coal	....	7 50
Caledonia	1 60	75	Run of Mine	....	7 00

Prices of Foreign Coals.

Duty, $1 25 per ton.

Corrected weekly by PARMELEE BROS., 32 Pine Street, N. Y.

Liverpool Gas Caking	$ 9 50	Liverpool House Cannel	18 00 19 00
" " Cannel	14 00	" " Orrel	16 00 18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD.

Liverp'l House Orrel, scr'd	$20@23	Liverp'l House Can'l, scr'd	$22 00 25 00

Per ton 2000 lb., delivered.

Coal Freights.

(Corrected Weekly).

Freights on Coal Sea-borne from Port Richmond, Philadelphia.

Feb. 13, 1868.—From Philadelphia and Reading R. R. Wharves, Phila., to

Bangor		3 50	New London	— —	2 70
Boston	— —	3 00	Dover	— —	3 55
Providence		2 50	Cohasset Narrows	— —	3 40
Lynn and discharging		3 50	Cambridgeport	— —	4 00
Portland		2 75	Dorchester	— —	3 30
Fall River	— —	3 00	Fair Haven	— —	2 75
New Bedford		3 00	Gloucester	3 40	3 50
Salem		3 50	Lawrence	— —	2 40
Newport	— —	3 00	Old Cambridge	— —	3 80
East Cambridge	— —	3 00	Saco	— —	4 10
Newberryport	— —	3 75	Roxbury	— —	3 55
Portsmouth	— —	3 75	Salisbury	— —	3 80
Charleston	— —	2 00	Greenport	— —	2 75
Danversport and discharging		3 50	Norwich	— —	2 75
Amesbury	— —	3 90	Harlem	— —	1 45
Beverly		3 50	New Rochelle	1 30	1 40
Charlestown		3 50	Sag Harbor	— —	2 75
Hingham	3 35	3 40	Spuyten Duyvel	— —	1 40
Marblehead		3 60	Williamsburg	— —	1 35
Nantucket	— —	3 50	Jersey City	— —	1 80
Plymouth	— —	3 25	New Brunswick	— —	1 20
Provincetown	— —	3 50	Alexandria	— —	1 40
Washington	— —	2 25	Fredericksburg	— —	2 20
Calais	— —	3 30	Wilmington, Del	— —	1 00
Machiasport	— —	3 30	Bath		3 70
Hoboken		1 60	East Greenwich		3 ..
Hyannis		3 50	Providence		3 ..
Malden		.. 4	Albany		1 95
Nahant and discharge		3 20	New York	1 50	@1 60
Weymouth and towing		3 50	Troy		1 95

Provincial Freights.

TO NEW YORK.		TO BOSTON.	
Sydney	$3 50	Sydney	$2 75
Lingan	....	Lingan	2 25
Cow Bay	4 50	Cow Bay	....
Port Calidonia	4 25	Port Calidonia	3 00
Little Glace Bay	4 00	Little Glace Bay	2 75

From Elizabethport and Port Johnson.

Albany	$1 10	— —	New London	$1 35	— —
Boston	2 75	3 00	Newport	1 75	— —
Bridgeport	1 25	— —	New York	50	— —
Fall River	1 75	— —	Norwalk	1 25	— —
Hartford	2 00	— —	Norwich	1 50	— —
Hudson	1 10	— —	Pawtucket and towing	1 85	— —
Wareham	2 00	— —	Portland	2 75	
Middletown	1 85	— —	Portsmouth	3 00	
New Bedford	2 00	— —	Providence	1 75	— —
Newburyport	3 00	— —	Salem	2 00	— —
New Haven	1 25	— —	Augusta	3 25	— —

Foreign Freights.

New Castle and Ports on Tyne	£18@£15 keel.		
Liverpool	12s. 6d.@15s. ton.		
Australian	9 50@10 00	Lehigh	15 50@16 00
do. Wallsend	10 00 10 50	Liverpool	13 00 ....
Bellingham Bay	11 00	Pittston, ton	14 50 15 00
California	7 00 9 00	Scranton	14 00 15 00
Cumberland cks	30 00 22 00	Scotch	13 00 ....
do bulk	28 00	Vancouver Island	12 50 ....
Chili	10 00		

AMERICAN

Journal of Mining.

WESTERN & COMPANY, Proprietors

ROSSITER W. RAYMOND, EDITOR.

OFFICE, 37 PARK ROW, NEW YORK.

By publishing contributions, the JOURNAL OF MINING does not necessarily endorse the positions assumed by contributors.

Published Every Saturday Morning.

TERMS.—SUBSCRIPTION, $4 00 per annum, in advance; $2 25 for six months. Single copies, Ten Cents. New York City subscribers are required to pay 50 cents a year extra for delivery. ADVERTISING: Twenty-five cents per line of nine words for each insertion inside, and forty cents outside. Terms invariably cash in advance.

DESIGNING, LITHOGRAPHING, WOOD ENGRAVING, and JOB PRINTING

Executed in elegant style, on reasonable terms.

NEW AGENCY.—GEO. E. CUMMINGS has been appointed our sole agent in Philadelphia, Pa., for the AMERICAN JOURNAL OF MINING, our new paper, the MANUFACTURER AND BUILDER, and our Spanish paper, EL CORREO HISPANO-AMERICANO. His address is 154 South Fourth street, Philadelphia, Pa., where all information respecting communications, subscriptions and advertisements for these papers will be gladly given to those who may wish to favor us with a call.

In making remittances for subscriptions, always procure a draft on New York, or a *Post Office Money Order*, if possible. Where neither of these can be procured, send the money, *but always in a registered letter*. The registration fee has been reduced to *fifteen cents*, and the present registration system has been found by the postal authorities to be virtually an absolute protection against losses by mail. *All* Postmasters are obliged to register letters whenever requested to do so.

☞ Correspondents, exchanges and others addressing us should be *extremely careful* to write "JOURNAL OF MINING," instead of "MINING JOURNAL," and to give the number of our Box at the Post Office, which is 5969, to ensure safe carriage. Communications intended for publication should be plainly written, and on one side of the paper only.

NEW YORK, SATURDAY, FEBRUARY 13, 1869.

CONTENTS OF THIS NUMBER.

EDITORIALS.—Eldectricity and Steam—Some Curious Facts in Regard to Alloys—Reciprocity with China—Effect of the Pacific Railroad on Foreign Nations—Santo Domingo.
ORIGINAL PAPERS.—Report of Explorations in the Gold Fields of Virginia and North Carolina, by Dr. H. Credner, No. X—The Chemical Operations, No. V., by Prof. Hinrichs.
ILLUSTRATIONS.—The Sturtevant Patent Blower—The Bessemer Process.
CORRESPONDENCE.—Good Coal in the Far West, Analytical Results.
SCIENTIFIC MEETINGS—Society for the Advancement of Science and Art.
MISCELLANY—The Coming Ship—The Harrison Boiler—Diamonds and Gold at the Cape Colony—Welding Powder—Mining on the Pacific Coast, the Quicksilver Coal and Iron Trade in 1868—Velocity of Cannon balls—The Bessemer Process and its Late Improvements, etc.
MINING SUMMARY.—GOLD & SILVER: Nevada—Colorado—Montana—Maine—New Hampshire—Canada.
ANSWERS TO CORRESPONDENTS.
REVIEW OF THE IRON TRADE.
REVIEW OF THE COAL TRADE.
MINING AND OTHER STOCKS.
METAL MARKET.
SPECIAL NOTICES.
Etc., Etc., Etc.

NOTICE TO CORRESPONDENTS.

In consequence of a new regulation recently adopted by the Postmaster of this city to facilitate the early delivery of mail matter, we have to request our correspondents, in addressing us, to give the number of our post-office box, No. 5,969, in lieu of, or in connection with our business office address.

ELECTRICITY AND STEAM.

There are some grounds for the belief that electricity will one day be the most advantageous medium for the transportation of heat into visible motion—in other words, that it may take the place now occupied by steam in the world's economy. We have already shown in previous articles, that, apart from the loss by friction, radiation, &c., there is an inherent waste in the employment of steam, probably in the form of molecular movement, or, to use a familiar phrase, in overcoming the cohesion of the liquid atoms, which resists their conversion into steam. No improvements in machinery are able to touch this evil; and therefore the economy of steam is relative to man only, not to nature. That is to say, steam is a cheap motor, because coal and wood and water and air are cheap, and we have discovered cheap ways of manipulating them—not because we really obtain for use the whole or any considerable part of the heat stored up in them.

Many persons have given attention to electricity as a motor. Years ago electric engines were successfully constructed, and great numbers of small working models, acting upon divers principles, have been from time to time exhibited; but all these experiments have been abandoned, because this power is too expensive. We must wait until sources of electricity have been discovered cheaper than those we now possess. Attempts to apply it as a motive power are at present as premature as would be the employment of steam, if wood were sixty times as dear as it is, and the coal mines had not been discovered.

Our best material, thus far, for the development of electricity is zinc, itself a product of art, extracted from its natural ores by means of heat (of coal or wood); and its value per pound is at least forty times that of coal. A contemporary lately remarked that electricity is therefore forty times as expensive as steam, since one pound of zinc costs forty times as much as one pound of coal, and produces only the same motive power. But this view of the case is inadequate and incorrect, since it is based on the erroneous assumption that equal weights of fuel, whether zinc or coal, should generate equal amounts of heat. It is the oxidation of the solid, in both cases, which yields the heat, but the effective result being a function of chemical action, depends on the quantity of oxygen taken into combination. The chemical equivalent of zinc is 32, and that of oxygen 8: 64 pounds of zinc will therefore combine with no more than 16 pounds of oxygen. The chemical equivalent of coal (carbon) on the other hand, is only 6; and it combines with two equivalents of oxygen. That is to say, 6 pounds of coal will unite with 16 pounds of oxygen to form carbonic acid. Therefore 64 pounds of zinc will produce no greater mechanical effect than 6 pounds of coal; and, taking also into account the difference in price, the employment of zinc is seen to be more than 400 times as expensive as that of coal. It must be borne in mind also, that the oxidation of zinc in an electric battery requires acids, which are also costly products of manufacture, while coal oxidizes at the expense of the free air.

Taking all these points together, it appears that fifty dollars would be expended to obtain by means of electricity an amount of power which may be had from steam for about ten cents; and this corresponds tolerably well with estimates honestly made by experimenters in electro-magnetic engines. But this power which should cost ten cents from steam, costs twenty at present, by virtue of the imperfection of mechanical apparatus; and improvements in that direction may reduce it towards the minimum of ten cents (at present rates of coal). On the other hand, the amount of heat equivalent to this ten cent's worth of power, costs but one cent; and the other nine are wasted by the employment of steam as a medium. It costs us nine cents to make the steam which should transmit for us one cent's worth of power; and it costs us ten cents more to effect the transmission. Hence, our present steam-engines make our power cost twenty times as much at it should. They consume twenty pounds of coal in utilizing the effect stored in one pound.

Assuming electric engines to be, thus far, no more perfect than steam engines, we shall find that electricity as a motor costs *eight thousand times* what the natural mechanical equivalent of heat would indicate. Yet in this direction lies hope; for the progress of science may make electricity as cheap, in proportion to mechanical effect as steam; and when that point is reached, it will soon be passed; for the inevitable loss of ninety per cent. in the use of steam will soon be avoided, while the electric engine may be perfected by continual approximations towards the true mechanical equivalent of heat.

Only let us make as rapid progress in the next century as in this, and the world will see greater wonders than steam-engines.

SOME CURIOUS FACTS IN REGARD TO ALLOYS.

It is very remarkable how very small an admixture of foreign matter will in many cases totally change the properties of any metal. Five per cent. of carbon changes the almost infusible pure iron into very fusible cast iron; two per cent. of carbon makes it less fusible, but very hard—it is steel; what we call wrought iron contains still about one per cent. of carbon; and when entirely pure, iron is an exceedingly soft metal. A small proportion of sulphur or phosphorus makes it so very brittle, that it becomes useless and worthless. On the contrary, less than one per cent. of tungsten gives it great toughness and a superior hardness at the same time, so that the steel thus made cuts all other kinds of steel; and this so-called toughened steel promises to supersede all other kinds, for purposes requiring such qualities.

Copper loses its red color and its softness with comparatively small quantities of other metals. With one-tenth of metallic arsenic it becomes perfectly white, and so similar in appearance to silver, that it has been substituted for the latter. With about one-tenth of tin, it is very hard, of pale yellow color, and is used under the name of bronze for gun metal, bearings of machinery, etc. With less tin, it is softer, and with more tin it becomes hard and brittle. The maximum hardness and brittleness is obtained with about 15 per cent. of tin. Large church-bells contain as much as 30 per cent. of tin, otherwise they are liable to become cracked. Copper, with 50 per cent. of tin, is very white, and is used for mirrors in reflecting telescopes. In order to be still malleable, copper must contain less than 10 per cent. of tin.

Zinc is a better addition to copper for these purposes, and is almost always used, as it does not sensibly injure the malleability, and causes the copper to make better castings. Pure copper always, during fusion, absorbs oxygen from the air, which separates again during solidification, and causes the casting to be full of holes. This difficulty is entirely overcome by the addition of about 3 per cent. of zinc, or from 6 to 8 per cent. of brass, which is an alloy of copper with from 10 to 30 per cent. of zinc. The addition to copper of 60 to 100 per cent. of zinc will produce a red brass, workable at a red heat, and called MUNTZ's Metal. Two hundred per cent. of zinc, or two parts of zinc to one of copper, makes a blueish-white alloy, so brittle and crystalline, that it may be pulverized in a mortar.

Very small quantities of nickel make copper white; the so-called nickel cents contain only 8 per cent. of nickel; and the five-cent pieces, 10 per cent. of nickel. It is this alloy which is called here German silver, and in Germany, Neusilber. A new alloy of this kind was patented in Vienna, a few years ago: namely, an alloy of copper with Manganese, which is very remarkable. The latter is a very abundant metal, which, however, has found thus far no application in its metallic state.

Copper, with various quantities of both zinc and tin, and sometimes also lead, gives a variety of alloys of different qualities, and therefore adapted for different purposes. Experience has shown them to be needed.

Gold and silver in the pure state are too soft for most purposes, and therefore they are alloyed in the arts with copper; the usual alloy is from 10 to 25 per cent. of copper. As copper gives gold a rather reddish color, silver is also used in combination with copper. Silver alone gives gold a rather pale yellow appearance. A thousandth part of cobalt or nickel is said to make silver very hard—almost as hard as steel.

RECIPROCITY WITH CHINA.

The San Fancisco *Mining and Scientific Press* says:

"The working of the Chefoo gold mines has been summarily closed by orders from the different foreign ministers at Pekin, issued to the consuls, forbidding the issuance of passports, and declaring that mining is not a right guaranteed by treaty. As the Chinamen have the freedom of our own country subterraneously, it would seem that our relations with China are left on an unequal footing in that respect. ROSS BROWNE will, no doubt, talk the matter over with Prince KUNG in due time."

Will the *Press* informs us whether any Chinamen in the Pacific States and Territories are allowed to work in mines underground. Our observation has discovered as yet no instance of the kind; and we think the adverb "subterraneously" slightly out of place, unless it is meant to imply that the Chinese are not free in this country until they are dead and buried.

A region in which the miners' codes often contain the clause, "No Asiatics allowed in this district," and almost invariably impose a special tax upon Chinese miners, and in which the evidence of a Chinaman is not allowed in a court of justice, should not boast of the "subterraneous freedom" which it extends to that race. Many persons are afraid that over-populous Asia will take by storm our fair Pacific slope. Without discussing that question, we suggest that nothing will be more likely to keep the Chinese at home than the discovery of profitable gold fields in their own country; and that unless we are willing to allow them freedom and protection here, the best thing we can do is to let them alone in China. We cannot well continue to banish the Chinese from our mines, and expect them to admit us freely to theirs. They are known to be characteristically an imitative people. Where, O *naive* contemporary! do you suppose they learned their little maxim, "No Americans allowed in this district?"

EFFECT OF THE PACIFIC RAILROAD ON FOREIGN NATIONS.

One effect of the Pacific Railroad system of this country which has not been much discussed, is already becoming evident. We allude to the influence which the example of the United States is exerting upon other nations, having like ourselves, vast areas of territory, and needing as much as we, both for efficient government and material progress, the agency of perfected communications between their different provinces. The employment of railroads as means of populating territory, building up communities, and creating commerce and trade, and not merely as conveniences for an already established and industrially developed condition of society, is an American idea. To the rapid extension of our railway system in advance of settlement and civilization, more than to any other one thing, is due the enormous progress of this nation in the conquest of a continent. So long as our activity in this direction was confined to comparatively short, local lines, foreign nations seemed to wonder at our success, without conceiving the possibility of imitation. But the daring plan and energetic execution of the Pacific Railroad have aroused the attention of the world; and two great nations, Russia and China, seem to be particularly interested. We read that on the occasion of the recent reception of Hon. J. Ross BROWNE, the American minister to China, Prince KUNG, regent of the Celestial Empire during the minority of his nephew, the Emperor, inquired with much interest how the Pacific Railroad was progressing. At the same time, it is reported, that the Czar has sent to this country two civil engineers, with instructions to make a complete examination of the operations of the Pacific and other great railways in the United States, having in view the construction of a railroad from China, across Asia to the capital of Russia. These indications are highly significant.

—The MANUFACTURER AND BUILDER is a complete success. Its permanency in the newspaper field is established beyond a doubt. It will have Fifty Thousand subscribers by January 1, 1870, judging from the receipts for the past six weeks. We bespeak for it a circulation ultimately of over *One Hundred and Fifty Thousand Copies.*

SANTO DOMINGO.

We understand that Prof. W. M. GABB, formerly connected with the California Survey, and now State Geologist of Santo Domingo, will sail in a few days for the latter country, to commence the work of a topographical and geological survey, with especial reference to the valuable mineral deposits which are known to abound in the island. The attention of American statesmen and capitalists has been turned at last, and none too soon, to the importance of Santo Domingo. The English and the French are also aroused in the matter; and if we desire to secure the political and commercial advantages which should naturally belong to the United States, we must act promptly. Concerning the overtures which are said to have been made by the government and people of Santo Domingo, for annexation to the United States, little has been made public; but it is evident that the State Department at Washington is in possession of important information. Meanwhile, the investment of American capital continues, and will be certain to lead, sooner or later, to more intimate political relations.

ANSWERS TO CORRESPONDENTS.

☞ Correspondents are requested to sign name and address in full, as sometimes we may wish to write them by mail, when the answers they require are not of importance to our readers in general. In no case will the names thus enclosed be published, if a *nom de plume* is signed to the letter to indicate the writer's desire to remain unknown.

M. C., OF N. Y.—The nature of the metal has nothing to do with the temperature at which the red heat shows itself. In all cases the incipient red, only visible in the dark, appears at about 900 deg., Fahr. (Zinc melts at 700 deg., and antimony at 800 deg.) At 1,000 deg., the red heat is scarcely visible by daylight; at 1,100 deg., just visible; at 1,200 deg., it is a dull red; at 1,300 deg., a cherry red; at 1,400 deg., full red heat; at 1,500 deg., bright red; at 1,600 deg., yellowish red; at 1,800 deg., yellow heat. This is the melting point of black cast iron; 2,000 deg. the melting point of gray cast iron; 2,200 deg. is white heat; 2,400 deg. the melting point of cast steel; 2,600 deg., bright ignition; 2,800 deg., dazzling white heat, and 3,000 deg. the temperature of the melted iron at the last stage of the BESSEMER process, which is also the melting point of pure bar iron and of pure nickel. This is the greatest heat which can be produced by blast furnaces with common air. A blast of pure oxygen drives it, however, up to 4,000 deg., which is the melting point of platinum. The numbers given here are perfectly reliable; those still found in many text-books, the authors of which copy old estimates, are greatly exaggerated.

T. K., OF MICH.—Propounds the following: "Suppose a pound weight will just bring down a spiral spring, six inches in height, how many pounds will be required to bring down eight spiral springs, each six inches in height, each spring being separated from the other, not counting anything for the weight of the springs, and they being placed one upon the other?" The separation of the springs, and the placing of one upon the other, means, we suppose, that some intervening solid prevents them from sliding one into the other. The reply to this question needs no experiment: it is self-evident. The weight bringing the top spring down, presses also on the second, third and all the others equally. They will all be brought down with the one pound weight; and in bringing them down, the weight will descend through an eight times greater space than in bringing the one spring down. If the springs were separately placed, one near to the other, it would take eight pounds to bring them all down, each spring requiring its pound weight.

J. T., NEWARK.—"Rudimentary works, detailing the different methods now in use for the extraction of gold and silver," do not, to our knowledge, exist; and if they did, they would scarcely be of much benefit to the "uninitiated California Emigrant." The metallurgical processes require a knowledge of chemistry and mechanics. It is true that mills and furnaces are often managed by men who are called "uneducated;" but these men have the education of practice, which partly takes the place of scientific knowledge. The "rule of thumb" goes a great way, but that cannot be imparted in books. We cannot give the rudiments of science in the JOURNAL OF MINING for want of space, but we devote to such topics all the room that we can spare without injustice to our more advanced readers. The best course for a student is to study the *principles* of science in a good text-book, and its *progress* in the JOURNAL OF MINING.

E. J., OHIO.—If you address us a communication on the subject to which you refer, and if its contents are likely to be interesting to our readers, we will publish it; but advice to the Editor of this journal as to the proper course for him to pursue in his treatment of the subject is neither your right, nor your privilege, nor (apparently) your *forte*. As to an advertisement, offered to the JOURNAL OF MINING, "if the Editor comes out strong in favor of," etc., etc., it is respectfully declined on those terms, and a repetition of the offer will make the Editor "come out strong" in righteous wrath.

S. K., OF N. J.—Electricity has been often used in various ways to light gas. It was first applied on a large scale in 1859, in the COOPER Institute in this city, where Dr. VAN DER WEYDE, with a RUHMKORF coil, from the laboratory on the fourth floor, ignited with a single spark, conducted along wires through the flues, the 300 gas burners in the large hall in the basement. The same system is now used to light Mr. A. T. STEWART'S new picture gallery, BOOTH'S new theatre, and other places. Frictional electricity is entirely unreliable for this purpose, not acting in damp weather, nor in damp localities.

INQUIRER, BROOKLYN.—To your question, how the publishers can possibly afford to furnish a magazine as large and handsome as the MANUFACTURER AND BUILDER, at so low a price as $1 50 per annum, we reply, that we cannot afford it, unless we secure and retain a large circulation; but the point of paying circulation is already, within a month of our first issue, almost attained. To you and all other subscribers we say, if you will afford the $1 50, we will afford the MANUFACTURER AND BUILDER.

S. M. N., OF MASS.—Garancinx, Alizarin, Purpurin and Xanthin are all coloring principles, discovered during the last 20 years, in the muddu or rubdu tinctorum, a root grown extensively in Holland, France, Italy and Turkey. The colors produced from it are red, orange, yellow and violet, mostly used in dying; a "lake" is also made and used by portrait and landscape painters.

K. O., OF CONN.—Asks how to paste leather to metal, so that it will stick and can be relied upon. Warm your metal and put on a hot solution of good glue; soak your leather in a warm decoction of gallnuts; put your metal on the leather, and keep them pressed sufficiently together till dry.

R. G., OF MICH., AND T. B., OF PA.—The reply to M. L. W., page 41, current volume, is perfectly correct, as the square inches exposed to the pressure must be taken into consideration. When the diameter of a cylinder is doubled, the surface is doubled, and consequently, also, the total amount of the pressure of the water filling it.

W. G. W., OF ALA.—The simple weight of the water in an ARCHIMIDES screw will cause it to rotate in such a direction as to allow the water to descend. We think the combination you suggest may be practical and valuable.

J. O. S., OF N. Y.—The side of the driving wheel must, of course, be taken into consideration when determining the tractive power of an engine. The other elements are the size and stroke of piston, and the steam pressure in the cylinder.

W. M., OF PA.—Not all processes for making self-raising flour are patented, nor patentable; and even some which have received patents could not be sustained if brought before a judicial tribunal.

S. A. O., OF N. Y.—Soaking plaster casts in a solution of alum will harden them. A hot solution of glue makes them tough, but spoils their appearance.

E. C. B., OF PHILADELPHIA.—Will answer by mail in a few days.

Original Papers.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

REPORT OF EXPLORATIONS ON THE GOLD FIELDS OF VIRGINIA AND NORTH CAROLINA.

BY DR. H. CREDNER.

X.

DESCRIPTION OF INDIVIDUAL MINES, ETC., CONTINUED.

90. SCAY'S *Mine*, three-quarters of a mile west of Booker mine, on a tract of 300 acres. Several veins of quartz containing gold in oxide of iron and iron pyrites have been opened by six cuts and two shafts, each 30 feet deep. There are the ruins of an old mill on the bank of a small creek, deserted for 12 years past.

91. *Willis Mountains Iron Mines*, on GARNETT'S *Property*. A vein of iron ore, having no practical value. It deserves no special description.

92. The same is true of SANDER'S *Property*, south of Willis mountain, which contains two deposits of poor iron-ore.

93. SHEPARD'S *Property* (leased by Mr. APPARSON) with a vein of magnetic iron of the best quality. This vein is two and a half to four feet wide and its outcrop can be traced for a length of 100 feet; it is opened on both sides of the road by two cuts.

On the bank of a small creek, a quarter mile from SHEPARD'S house, a bed of talcose greenish slate, with traces of cobalt ore, crops out and can be traced for 350 yards.

94. *Lessure-Mine-Property*, belonging again to the Hobson-London-Vein tract, and situated between Hobson and Staple's Mines. The Hobson Vein is not yet opened, but a parallel one of a very different character, consisting of white massive quartz with little oxide of iron and of no great value.

95. Open cut on Mr. Apparson's property, three quarters of a mile north-east of Lessure shaft, eight feet deep on the same vein.

96. DUNCAN'S Property, northeast of APPARSON'S, comprises 260 acres of land. The outcrop of the Lessure-Apparson-Vein is visible on some places, but looks very poor. A creek and two branches run through alluvial deposits which formerly have been worked by surface washings.

97. HARRIS *Property*. No outcrop and no prospecting pits; but situated in the direction of the Hobson-London-Vein.

98. *Rough and Ready Mine*, with an old shaft, now broken in; quartz vein with oxide of iron and iron pyrites; seems to be the continuation of the Lessure-Apparson-Duncan-Vein.

99. AYR'S *Mine*, south of Rough and Ready. Eight or ten old cuts and shafts, and a large excavation, 35 feet deep (now full of water) are situated in one line, the direction of which is northeast and southeast. The vein opened by these pits consists of quartz with free gold and is said to have paid well. A mill has been started on the right bank of the creek, and traces of old surface-workings are to be seen on both banks. The property had been sold a few weeks before our visit to a Baltimore Company, which intended to commence work shortly.

The favorable opinion which we have expressed concerning many of the mines described above, may make it seem strange to some, that such excellent opportunities for the establishment of mining operations should not have been more successfully improved. In other words,

WHY HAVE THESE MINES NOT BEEN PROFITABLE?

The answer to this question is found in the following facts, with others of less importance which we will not here enumerate.

In the first place, it must be borne in mind that almost all mining enterprises must pass through a period of preliminary work, involving considerable outlay and little or no returns, before they can be established on a permanent and systematic basis. This is especially the case with mines containing a great abundance of ore, of comparatively low grade. The profit in such mines must come from operations on a large scale, by means of which the expense per ton of ore is reduced to a minimum, and the small surplus per ton of ore is multiplied to a handsome aggregate. It is precisely for a business of this character that a preliminary outlay of capital is necessary, in order to prepare the ground and the buildings and machinery for extensive extraction and reduction of ores. Now most of the Virginia mines were managed by private individuals—farmers and the like—or by companies, without sufficient capital to last through a period of preparatory "dead work." The result of this insufficiency of capital was a temporizing hand-to-mouth system of working. The extraction of surface ore was begun at once, and continued as long as it covered the running expenses. When this temporary revenue had been exhausted, or could not be further drawn upon without some new outlay, the mines were frequently abandoned. The mere necessity of using powder for blasting, or pumps for removing water, was frequently a sufficient cause for stopping the work. Farmers were accustomed to work their mines "between crops," and let them lie idle whenever their labor was required in agriculture.

Those few companies which started with sufficient capital, almost invariably wasted it in costly and unnecessary experiments. In the long list of mines we have described, there is not one, in which the mining work proper has been the object of undue expenditure. Money enough has been spent upon wild schemes or patent processes and apparatus, to open the mines thoroughly: but the underground work has received little care, and has been conducted with still less skill. The examination of former workings entirely confirms the statements of witnesses that the superintendents were anything in the world but mining engineers. There is scarcely a trace to be observed of a rational, systematic extraction of ore. It is astounding, in view of the numberless instances to the contrary which this country presents, that people can yet be found who believe that special professional education and training are not necessary to a mining engineer.

It is not surprising that a method of extraction so rude and reckless was accompanied with a system of reduction equally imperfect. The tailings accumulated at many mines attest the great loss of gold involved in former processes of treatment.

The use of slaves as laborers in the mines have may been a temporary saving, but even this is doubtful, since gold mining, above almost any other employment, calls for personal interest, fidelity and honesty in the workmen. Opportunities for neglect of duty and for theft are frequent; and slaves have no reason nor motive for avoiding them, when they can embrace them without detection. But aside from this, the system of labor adopted in these mines never did and never could raise up a race of trained and skillful miners. The miner of to-day was a field hand or a house servant to-morrow. But skilled miners are as necessary as productive mines, to a permanently profitable mining industry. To sum up in a single sentence all the disadvantages under which the gold mines of Virginia have labored, we may say that there are few requisites to success in this business. Valuable deposits of ore; capital; intelligent, skillful superintendence; and faithful, trained labor; and out of these four the last three were wanting. Fortunately for the future of that State, these lacking elements of prosperity are those which time and progress will supply; and the element which Nature only can bestow, and without which all the rest are in vain, is still at hand, and substantially unwasted in its abundance by the mistakes of man. When the mining industry of Virginia shall have been reorganized on a more rational plan, we believe it will enter upon a new era of growth and prosperity.

[We have decided to close here the publication of Dr. CREDNER'S interesting report, and to omit his notes upon various mines in North Carolina. The development of mining in that State, within the last three years, has been such as to render a later account of them desirable; and we hope, on a future occasion to lay before our readers a description of the mines of North Carolina and other Southern States, not less full and trustworthy than this report on Virginia. As circumstances have retarded the development of the Virginia mines, we believe the observations of Dr. CREDNER, made in November and December, 1865, accurately represent the present condition of affairs. At the same time we should be happy to hear from any of our Virginia readers, of such changes as may have taken place in the meantime.—ED.]

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

THE CHEMICAL OPERATIONS—VI.

BY PROF. G. HINRICHS, OF THE IOWA STATE UNIVERSITY.

Under the head of Chemical Operations in the wet way. I have spoken of (1) Solution and (2) Crystallization. I now come to a group of operations, comprising Precipitation, Decantation, Filtration and Washing.

3, 4, 5 and 6. PRECIPITATION, ETC.

44. If to a clear solution of alum or of blue or white vitriol, a solution of nitre be added, the mixture will remain clear. But if, instead of a solution of nitre, we add a solution of soda, a solid will be formed in the solution of

alum or blue or white vitriol. This solid quickly settles to the bottom of the vessel, appearing as if thrown down from the solution by the soda. It is therefore called the *precipitate*; the liquid added is called the *precipitant*, and the operation itself, *precipitation*. Since a chemical process or action is usually spoken of as a reaction, the precipitant producing such a reaction is also called a *reagent*.

45. The above described reaction may be stated as follows:

Nitre gives no precipitate with either alum, the vitriol, or soda; but soda produces a bluish green precipitate in solutions of copper vitriol, and a white precipitate in those of white vitriol or alum.

The precipitate remaining undissolved in the (aqueous) solution, is of course insoluble in water. Indeed, we shall soon see that its formation and separation are due to the fact that it cannot exist in the liquid, on account of its insolubility.

46. Precipitations are frequently performed in small cylindrical glass tubes. These are called test-tubes, because the reaction serves as a test for the presence or absence of given substances. When not in the hands of the student, the test-tubes are usually supported in a rack or stand, as shown in Fig—[omitted]. Often it is necesary to heat the glass tube, in order to produce or accelerate the reaction. This is done over a spirit-lamp or gas-flame.

47. The precipitate, having settled to the bottom of the vessel, may often be separated from the clear liquid by merely pouring off the latter. This operation is called *decantation*. More frequently this separation is produced by *filtration*, that is, by pouring the contents of the vessel into a funnel, lined with a piece of porous paper, which retains the solid precipitate, while the liquid passes through, and is collected in a vessel below. The clear liquid passing through the filter is called the filtrate. Filters are occasionally made of other substances than paper. In order that the separation effected may be perfect, the liquid adhering to the precipitate is removed by successive additions of pure distilled water, which also passes through the filter. This called washing the precipitate. It is well to practise all these operations upon the substances above mentioned as illustrations. For further practical details the student is referred to the closing chapter of this book.

The next group of operations comprises Evaporation, Distillation and Sublimation.

7, 8 and 9. DISTILLATION, ETC.

48. An operation much practised by chemists is evaporation, or the removal of a volatile liquid by moderate heating, not sufficient to make the liquid boil. This operation is usually performed in porcelain dishes, heated over direct flame, or over a *water-bath* or *sand-bath*. A water-bath is a copper basin, the cover of which consists of movable rings, serving for the support of the porcelain evaporating-dish. When this basin is filled with water, it is evident that the temperature of the bottom of the porcelain-dish will not rise above the boiling point of water. A sand-bath is an iron pan, filled with pure sand.

When no heat is applied, the slow evaporation which takes place is called spontaneous evaporation. The operation is also sometimes performed in a vacuum (under the receiver of an air-pump) particularly when the solution contains substances which would be destroyed at a high temperature. In this case, the removal of atmospheric pressure accelerates evaporation.

49. If the liquid is put into violent motion by the formation of bubbles of vapor throughout its entire mass, the operation is no longer simple evaporation, but boiling.

50. If evaporation or boiling is combined with a condensation of the vapors formed, it is called distillation. This is most commonly performed by means of a glass retort (Fig—, omitted). The neck of the retort bends downward and leads into the receiver. This secures the flow of the condensed (liquid) vapors into the receiver. If the neck were upright, the vapors might condense and flow back into the retort, thus necessitating repeated vaporization, and prolonging the operation. In order to secure the rapid condensation of the vapors, a small stream of cold water is made to flow upon and over the receiver, from a suitable faucet. The retort itself is usually heated by means of a sand-bath and gas-flame.

If the vapors are not very readily condensed, the neck or tube through which they pass into the receiver is surrounded by a vessel with cold water, or by a freezing mixture. For details, see the chapter on practical chemistry.

51. The operation of distillation is one of the most important, both in science and in the chemical arts. Not only are water, spirits, acids, etc., distilled; but even many solids, like sulphur, zinc, etc. Since in this process only the volatile parts can pass into the receiver, all non-volatile impurities will remain behind. Thus distilled water is pure and free from mineral matter, although, before distillation it may have contained a large amount of mineral, non-volatile impurities.

Fig.—[omitted] shows how zinc is purified by distillation. The metal is fused in a well-covered crucible; the vapors of zinc pass down through the tube *a b* into vessel *c*, containing cold water, where they are condensed.

52. If the vapors are condensed to a solid, instead of merely a liquid, form, the operation becomes sublimation. Iodine and other substances may be sublimated by heating them upon a sand-bath in a porcelain dish, over which a beaker-glass has been inverted [Fig. 29—omitted]. Iodine will deposit itself on the upper part of the beaker in beautiful crystals, thus giving us another method for the production of crystals. One of the most beautiful substances for this experiment is the red mercury iodide; it forms splendid yellow crystals in the upper parts of the beaker, and these crystals turn red, when touched with a hard body, as for instance, a knife-blade.

Correspondence.

[To insure insertion of correspondence in our columns, the full name and address of the writer must be given.]

Good Coal in the Far West—Analytical Results.

CABINET U. S. GENERAL LAND OFFICE, Feb. 11, 1869.
EDITOR AMERICAN JOURNAL OF MINING:

SIR: The development our Western Territories is secured beyond question by the abundant supplies of good coal which makes its appearance on all the conspicuous lines of travel on the side of the Rocky Mountains as well as in the Far West. The operations of our geological explorers have shown that the same formations occur on both sides of the great dividing ridge.

Dr. F. A. GENTH'S analysis of a specimen from seven miles east of Cooper Station, U. P. R. R., on the old stage road, Laramie Plains, Wyoming Territory, collected by Dr. F. V. HAYDEN, gave the following result:

Moisture	9.38	per cent.
Volatile matter	39.12	"
Carbon	47.04	"
Ash (yellowish brown)	4.56	"
Total	100.00	"

It contains 1 38-100 per cent. of sulphur, which is equal to 2 1-2 per cent. of pyrites. A determination of the calorific power of this coal showed a reduction of 22.20 parts of lead from the oxide by one part of coal, while pure carbon reduces 34 parts of lead.

Another specimen of coal from Point of Rocks Station, N. P. R. R., Wyoming Territory, gave:

Moisture	8.54	per cent.
Volatile matter	30.60	"
Carbon	52.34	"
Ash (white)	8.52	"
Total	100.00	

This sample contains a very minute quantity of sulphur (only 0.04 per cent.), which is equal to 0.075 per cent. of pyrites. One part of this coal is capable of reducing 21.80 parts of lead from the oxide.

A. R. ROESSLER, Geologist General Land Office.

Special Notices.

The Harrison Boiler Vindicated.

An official examination, made to ascertain the cause of the recent great fire at Philadelphia, in which the large stores of Messrs. Caldwell & Co. were destroyed, fully exhonerated the Harrison boiler from all connection with the cause of the disaster. A jury composed of experts, sworn for the purpose, made a thorough examination, and testified to this effect: The boilers were found entirely uninjured, either inside or outside, excepting the breakage of a glass tube and a small steam pipe, probably caused during the fire by falling timbers. In presence of the jury, fire was started under the boilers, and steam was raised, showing everything in working order. The theory that the fire was caused by a Harrison boiler, (for which there was never any foundation except street rumor) is thus officially disproved and disposed of in a way that must be gratifying to the makers of the boilers and those who are using them.

The Coming Ship.

The "coming ship," as the intended rival of the Great Eastern is designated, has at present been exhibited, in model only, at San Francisco. It is to be of the same size as the Great Eastern, except that instead of 28 feet it will draw only 18 feet, and it will carry proportionably less tonnage. It is designed to carry four times as many passengers as any present style of ship, and to substitute for bunks, regular beds; it will also give four times the space to a state room. The San Francisco *Times* says:—The present mode of bunking passengers is unworthy of the age. Sea-sickness, if preventible by construction, should be rendered obsolete. This desideratum is attained in Thomas Silver's coming ship: it is secured by the proportions of the ship, and by there being thirty feet less of the hull out of water than in the Great Eastern; but the motion is rendered almost imperceptible by a new device. The state-rooms, instead of being at the outside limits of the vessel, are amidships; that is, the centre line of the ship, where the roll is scarcely perceptible. The saloon is to be 500 feet long, and clear of obstructions. It is not for dining. Instead of a public table there are to be two competing restaurants at the extremities adjoining the saloons. The ship will sell passage only; the board being payable as the meals are ordered. It is contemplated to carry second-class passengers, and third-class in the same way. The present first-class bunks will be for third-class berths.

OFFICE OF

The Bishop Gutta Percha Company,

113 LIBERTY ST., N. Y.

BISHOP'S

IMPROVED ELECTRIC

FUSE.

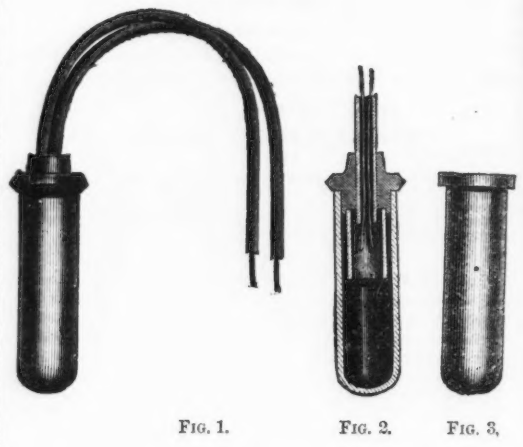


FIG. 1. FIG. 2. FIG. 3.

The accompanying cut represents the Fuse, which can be used for the explosion of

Powder or Nitro-Glycerine.

The two Conducting Wires (3 1-2 feet long are each separately insulated and tested before using. This mode has been adopted as the best and surest one, and most reliable, as the insulation

Can be Thoroughly Tested in Single Wire,

and CANNOT BE where two wires are insulated in one covering.

———:o:———

FIG. 1 is a perspective view, and Fig. 2 a vertical section, showing the internal construction. Fig. 3, shown in the accompanying cut, is to be used with

Match Fuse,

for blasting with Nitro-Glycerine; the Fulminate is the same as used in No. 1, and is

SURE FIRE.

We offer to the public this IMPROVED FUSE for Blasting Powder or Nitro-Glycerine. The Primer and Fulminate is prepared by

DR. J. G. POHLE,

of New York, whose reputation is a sufficient guarantee for the quality of this portion of the Fuse.

The manufacture of the Fuse is under the charge of

CHARLES A. BROWNE,

formerly Electrician at the Hoosac Tunnel. The Insulated Wires are of our own manufacture, and of

PURE COPPER

AND

PURE GUTTA PERCHA.

We feel confident, therefore, that we can offer the best article in the Market. We are making an

ELECTRIC MACHINE,

to use with this Fuse, of an entirely new and much improved pattern, from a design by Mr. BROWNE, which we feel sure will please, and be sold at very much less than the present Machine in use.

———:o:———

The Fuse will be packed in Boxes of 100 and 1,000 each, and in this manner will be sold, ready for shipment. Prices will be graded by quantities wanted, and will be as low as the same quality of Fuse can be had in Market.

———:o:———

For any further information, and Pamphlet with full instructions, apply to

SAMUEL C. BISHOP, General Agent,

113 LIBERTY STREET, N. Y.

feb.6-4t.ls

THE MINES OF COLORADO;

BY OVANDO J. HOLLISTER,

LATE EDITOR AND PROPRIETOR COLORADO MINING JOURNAL.

The approaching completion of two lines of railway between the Mississippi Valley and the Rocky Mountains, will mark an era in the history of the nearer of the mining Territories—Colorado. It will infuse new life into mining, by giving safe, quick and reliable communication, reducing freights and risks, thus cheapening supplies and furnishing a most necessary competition in the labor market, under which the production of the precious metals will be largely increased and the value and importance of property of all kinds proportionally enhanced. This cannot fail to arrest the attention of capitalists who are interested in Colorado gold and silver stocks, or are thinking of becoming so. It will be of yet more benefit to that large class whose capital is their muscle, because it will make accessible to them a new and large tract of virgin land, which, though far West, is still on the World's great highway, and therefore in no sense of the word in the backwoods. This region has a pleasant and healthy climate, and while its soil is unsurpassed in strength by that of the prairie States, it has a superior market in the adjoining mines. It most eloquently invites settlement and improvement. It will also give the Summer tourist a choice between the West and the East. It is not hazarding much to say that the Rocky Mountains offer the most delightful Summer resort of the New if not of the Old World. The climate is cool and bracing, the air deliciously pure and soft, the scenery both grand and beautiful, the forests full of game and the streams of trout, with hot mineral springs of high medicinal value boiling up at the root of every shade tree in the sequestered parks. The annexations of the Rocky Mountains to the Union by railways will open a new world to science, a new field of adventure to money and muscle, a new and pleasant place of Summer resort to people of leasure.

To meet the growing want of definite information concerning that interesting country, this book is put forth. It treats of the discovery of gold and settlement of the country, its geography, chorography, geology, mineralogy and agriculture, its early efforts at self-government, and the progress and present condition of mining industry, including descriptive list of mining companies, principal improved mines, mills, machinery and methods of treating ore—in short, it undertakes to give, as concisely and precisely as possible, and without any pretension, all that is known on the subject.

CONTENTS.

CHAPTER I. PAGE.

Glance at Pike's Peak prior to the Discovery of Gold: Discovery of Gold on Ralston Creek in 1852, and on Dry Creek in 1858; Effect of the News in the States; Crossing the Plains; Indians; First View of the Mountains; Prospecting, Hunting; Placer Camp; Auraria; Arapahoe County; Election of Delegate to Congress and Representative to Kansas Legislature; Denver Town Company..... 1

CHAPTER II.

Grand Physical Divisions of Colorado; The Snowy Range, The Foot-hills, The Valley, and Over the Range; Characteristics of the Snowy Range, of the Foot-hills; The Great Mineral Belt; Metalliferous Veins; Mode of Occurrence of Gold..... 22

CHAPTER III.

Discoveries of Gold in the Mountains; John H. Gregory and the Gregory Lode; History of Discovery Claim on the Gregory; Placer and Bar Diggings; First Mining Laws; Russell Gulch; Quartz Mining; Gregory District Organized and Code of Laws Adopted..... 59

CHAPTER IV.

Visit of Horace Greeley and Party; Establishment of Newspapers; Attempted Organization of Government; Jefferson Territory; Mail, Passenger, and Express Facilities; Overland Mail; First Winter in the Mines; Quartz Mills; Wagon Roads..... 83

CHAPTER V.

Development of Mining through 1860-1-2-3; Opening Prospects; Immigration and Emigration; Quartz-Mining and Milling; Difficulty in Saving the Gold; Placer Mining; Organization of the Territory of Colorado by Congress; Mining Legislation; Miscellaneous..... 106

CHAPTER VI.

Condition of the Mines at the end of 1863; Transferred to Eastern Capitalists; The April (1864) Panic in Stocks; Temptation to Speculation in Gold Mining; Why the Miners were generally embarrassed at the end of 1863; Why the Eastern Mining Companies have been comparatively unsuccessful..... 131

CHAPTER VII.

Gilpin County; Present Condition of the Improved Lodes; Names of Mining Companies; Amount of Development; Condition of Mines and Mills; Machinery; Processes, &c..... 141

CHAPTER VIII.

Gilpin County continued; Swinging Round the Circle; Independent, South Boulder, Central, Wisconsin Districts, Peck and Missouri Gulches; Their Improved Mines, Mills, Companies, Processes, &c..... 214

CHAPTER IX.

Clear Creek County; General Characteristics; Idaho; Empire; The Mines of Idaho; Spanish Bar; Trail Run; Fall River; Morris and Downieville Districts; Empire Mines; Griffith and Argentine Districts; Discovery, Development, and Richness of the Silver Mines..... 227

CHAPTER X.

Boulder County, Characteristics; Mining Districts, Gold Hill, Ward, Central; Boulder Valley, Boulder City, Valmont; Geology and Topography of the Coal and Iron Region; Bellemonte Furnace and Coal Beds; Black Hawk Foundery..... 263

CHAPTER XI.

Park County; South Park; Towns and Mines; Salt Works; Geology; Placer Mining in the Past, in the Present; Beaver Gulch; Tarryall; Crossing the Range in Mid-Winter; Lode Mining in the Past, in the Present; Climate; The Espinosas; The Reynolds Guerrilla Raid..... 280

CHAPTER XII.

Lake County; Its Characteristics, Settlements; Arkansas River; Mining Districts, Westphalian, Pine Creek, La Plata, Georgia Bar, Hope, Lake Fails, Red Mountain, Arkansas, Independent, California, and Sacramento; Approaches..... 306

CHAPTER XIII.

Summit County; Middle Park; Upper Blue River; Ten-mile District; Result of Assays; Work doing; The Snakes; Peru and Montezuma Districts; Lodes and Companies and Improvements Going On; Gulch Mining, Union District, Gold Run and Buffalo Flats; Western Portion of the County..... 321

CHAPTER XIV.

Processes; The Stamp Mill, In Australia, Lake Superior, Copper Mines, California, Nevada, Colorado; Improvements, Keith's Desulphurizer, Crosby & Thompson's, Mason's, Monnier Metallurgical Process; Smelting, James E. Lyon & Co.; Making of Regulus, &c..... 338

CHAPTER XV.

Important Mining Legislation..... 359

CHAPTER XVI.

Geology and Geological History..... 375

CHAPTER XVII.

Agriculture; The Valley, &c..... 416

CHAPTER XVIII.

Recapitulation; Mills and Mining Machinery..... 432

Price $2, to all points within the United States. Address

WESTERN & Co.,
37 PARK ROW, N. Y.

MANUFACTURERS, ATTENTION!

—:o:—

El Correo Hispano-Americano,

(SPANISH-AMERICAN JOURNAL.)

DEVOTED TO

Commerce,

Manufactures,

Mining,

Railroads, etc.

And the Introduction of American Manufactures into

MEXICO,

SOUTH AMERICA,

THE WEST INDIA ISLANDS,

AND SPAIN

Published on the First of every Month.

EL CORREO HISPANO-AMERICANO

is the only illustrated paper in the Spanish Language published in the United States; hence all desirous of securing the profitable trade of the Southern Spanish countries should avail themselves of its columns. England and France have commanded hitherto the markets of Spanish-America for all kinds of manufactures, while the United States, excelling in almost every department, and offering in addition the inducement of low prices, have enjoyed but a small share of the trade. Few manufacturers in this country are aware of the vast extent and profitable nature of this commerce, but a conviction of the fact is rapidly making itself felt; and there is urgent inquiry for the proper means of turning this tide, which now flows to Europe, toward the shores of the Northern Continent. The best and surest means to this end is to furnish the Spanish-American consumer with full and accurate information regarding the commerce, manufactures, mechanical arts, mining, metallurgy, railways, etc., of this country, setting forth in these departments our superiority to the nations of the Old World, and explaining the advantages offered in our markets. With these convictions, we commenced the publication of EL CORREO, and we are happy to state at this time that we have secured the reward we sought for, and have now established not only the best medium of publicity for the manufactures of the United States, but one which can not be superseded in point of universal circulation, efficiency of advertising, and economy of terms.

Read this and Judge.

Our terms for advertising are 75 cents per line for each insertion, on inside pages, and $1 per line for each insertion on the outside. We feel confident that this tariff will meet the approbation of all concerned; and to those who have already advertised in the columns of South American papers, the difference offered in their favor by the CORREO will at once be apparent, especially when they reflect that, in order to secure an adequate advertisement, covering the ground offered by our journal, the CORREO HISPANO-AMERICANO, they must have recourse to the columns of the principal newspapers in all the chief cities of each Island and Republic. Now, there are no less than *forty-seven* such newspapers, charging at an average rate five and a half cents in gold (equal to say seven and a half cents in currency, at the present price of gold) per line for each insertion—that is to say, an advertisement of ten lines costs for a *single time* $26, gold, or $36 40, in currency. The same advertisement in the CORREO HISPANO-AMERICANO costs but $7 50 in currency, and gives, besides, a superior medium of publicity, and also an incomparably wider circulation than can be reached through the above papers. The terms of subscription have been fixed at $1 50 per annum, payable invariably in advance; single copies, 15 cents. These prices are of course exclusive of postage. All communications relative to the CORREO HISPANO-AMERICANO are to be addressed to

WESTERN & CO., Proprietors,

37 PARK ROW, NEW YORK.

—:o:—

orney's Philadelphia Press thus Recommends Our Paper:

"We have received EL CORREO HISPANO-AMERICANO, (*The Spanish-American Post,*) a Spanish newspaper, devoted to Commerce, Agriculture, Mines, Manufactures, Mechanism and Railroads. It appears to be a really first class industrial paper, and will unquestionably be of incalculable value in stimulating the higher class of manufacture in the Spanish-American provinces. Such a journal as this has been needed for years to aid their social development. It will also be of immense assistance to our manufacturers in the United States, by making known to the wealthy Spanish planters and miners the vast amount of useful inventions to be had in the United States. We *earnestly recommend our friends* in the iron business to advertise in the CORREO; in fact, it would pay the principal manufacturers of our State an immense profit if they would contribute to send a hundred thousand copies of this industrial journal every week to South America and the West Indies."

Send for Specimen Copy.

Valuable Works

ON

Mining,

Metallurgy,

Mineralogy,

Geology, Etc.

—:o:—

Any of the following Works can be obtained of the Publishers of this paper. Address

WESTERN & Co.,

37 PARK ROW, NEW YORK.

Enclosing the price named in the margin. No charge for Postage.

BARSTOW. Sulphurets; what they are; how concentrated; how assayed, and how worked, with a Chapter on the Blow-pipe Assay of Minerals. By Wm. Barstow, M. D. 1 vol. 12mo, cloth. San Francisco, 1867..... $1 25

BAUERMAN. A treatise on the Metallurgy of Iron. By H. Bauerman. 1 vol. post., 8vo. American edition revised and enlarged. New York, 1868..... 2 50

BLOEDE. The Gold and Silver Worker's Manual. A complete Practical Hand-Book on the Saving and Reduction of Gold and Silver Residues, including the Dry and Wet Processes of Reduction. By V. G. Bloede, of the Columbia Chemical Works, N. Y. 1 vol. 12mo, cloth. 1867..... 2 00

BRAVAIS. Etudes Cristallographiques. Par M. A. Bravais. 1 vol. 4to., paper. Paris, 1866..... 9 00

BRARD. Exploitation des Mines. 1 vol. 8vo.. 8 00

BROWNE. Report of J. Ross Browne on the Mineral Resources of the States and Territories West of the Rocky Mountains. Washington, 1868. 1 vol. 8vo, cloth..... 3 00

BUDGE. The Practical Miners' Guide; with a Treatise on the Art and Practice of Assaying Silver, Copper, Lead and Iron; together with a Collection of Rules, tables and illustrations. By J. Budge. New edition. London, 1866. 1 vol. 8vo, cloth..... 6 00

BYRNE (Oliver). The Practical Metal-Workers' Assistant; comprising Metallurgic Chemistry and the Arts of Working all Metals and Alloys; with the Application of the Art of Electro-Metallurgy to Manufacturing Processes. With 592 engravings..... 7 00

DADDOW AND BANNAN. Coal, Iron and Oil; or, the Practical Miner. A Plain and Popular Work on our Mines and Mineral Resources, and Guide to their Economical Development. With numerous maps and engravings. By S. H. Daddow and Benj. Bannan. 1 vol. 8vo, cloth..... 7 50

DANA. A system of Mineralogy. Descriptive Mineralogy, comprising the most recent Discoveries, by Prof. J. D. Dana, added by Prof. Geo. J. Brush. 5th edition, rewritten and enlarged, and illustrated with upward of six hundred wood-cuts. N. Y., 1868. 1 vol. 8vo, cloth..... 10 00

DANA. Manual of Geology, treating of the Principles of the Science, with special reference to American Geological History. By Prof. J. D. Dana. Plates. 8vo, half morocco..... 5 50

DANA. Text-Book of Geology. 1 vol. 12mo. By Prof. J. D. Dana..... 2 00

DANA. Manual of Mineralogy, including Observations on Mines, Rocks, Reduction of Ores, and the Application of the Science to the Arts. By Prof. J. D. Dana. 12mo..... 2 25

ERNI. Mineralogy Simplified. A short method of Determining and Classifying Minerals. Translated from the German of Von Kobell, by H. Erni. 1 vol. 12mo, cloth..... 2 50

FAIRBAIRN (William). Iron; its History, Properties, and Processes of Manufacture. New edition. Crown 8vo..... 3 50

KERL. A Practical Treatise on Metallurgy adopted from the last German edition of Kerl's Metallurgy, by Wm. Crookes, F. R. S., and Ernst Rohrig. 2 vols. 8vo, cloth. Vol. I 9 00

LAMBORN (R. H.) Metallurgy of Copper. (Weale's series)..... 1 00

LAMBORN (R. H.) Metallurgy of Silver and Lead. (Weale's series)..... 1 00

LYELL. Elements of Geology. By Chas. Lyell. 1 vol. 8vo, cloth..... 5 00

MUSHET. Papers on Iron and Steel, Practical and Experimental. 1 vol. thick 8vo. (Very scarce)..... 25 00

PHILLIPS. Guide to Geology. By Prof. J. Phillips. 5th edition. 1 vol. cloth..... 2 00

PHILLIPS. Mining and Metallurgy of Gold and Silver. By J. Arthur Phillips, Mining Engineer. 1 vol. royal 8vo. Illustrated..... 15 75

PHILLIPS. Elementary Introduction to Mineralogy. 1 vol. thick 12mo..... 9 00

PHILLIPS. Manual of Metallurgy. 2d edition. 1 vol. 12mo..... 6 25

PHILLIPS AND DARLINGTON. Records of Mining and Metallurgy. 12mo.. ..... 2 00

PIGGOTT (A. S.) The Chemistry and Metallurgy of Copper. The Art of Mining and Preparing Ores for Market. 12mo..... 1 50

SIMONIN. La Vie Souteraine ou les Mines et les Mineurs. Par L. Simonin. Paris, 1867, imperial 8vo., paper, with fine Engravings, colored Maps and plates of Metals, Gems, &c. 15 00

WHITNEY (J.) Metallic Wealth of the United States, Described and Compared with that of Other Countries. 1 vol. 8vo, cloth..... 3 50

WHITNEY. Colorado: Schedule of Ores contributed to the Paris Universal Exposition of 1867, with some information about the Region and its Resources. By J. B. Whitney, Commissioner from the Territory. Pamphlet 8vo, with maps. London, 1857..... 25

A TREATISE ON THE CONCENTRATION OF All Kinds of Ores,

INCLUDING THE

Chlorination Process for Gold-Bearing Sulphurets, Etc.

BY GUIDO KUSTEL,

Mining Engineer and Metallurgist, author of "Nevada and California Processes of Silver and Gold Extraction."

This work is designed to show the present condition of the art of concentration; putting forth the principles on which it is founded, without entering into scientific considerations. To make the work complete as far as possible, the processes of Dry Dressing are also briefly described therein; and the whole is so arranged, and illustrated by diagrams, as to enable every one to be successful in concentrating ores. As the method of reduction by stamping is considered important, the erection and treatment of stamp-works, as also the construction of grinders, are treated in full, and explained by numerous drawings.

Among the concentrating machines, the preference has been given to self discharging continuous contrivances; and of these again to such as have been sufficiently investigated as to their efficiency, the amount of water and of power required to run them, their proportion of loss, etc.—circumstances entirely neglected with California inventions—the relative data of the latter being mere guesswork, and unreliable. A short description of many less important contrivances may appear superfluous, but the knowledge of them may prevent many persons from spending time and money, as has often happened, on inventions supposed to be new.

The description of Jigging Concentration, important to Eastern lead mines, is furnished with diagrams of new continuous machines.

In addition to the strictly original matter contained in the book, facts and rules, running through its pages, are derived from the well-known valuable work (not yet finished), by Professor Gatzschmann, and from the very complete work on Concentration by Rittinger, which, although strictly scientific in its character, describes also all the practical advance which has been made upon the subject.

The treatise on the Chlorination of Gold and Silver ores is a strictly chemical one, and has no connection with that on the Dressing of Ores. It has, however, been written and published as the concluding portion of this work, in consequence of the general demand for information on the subject, and the great interest at present shown in respect to auriferous sulphurets; the extraction of the gold therefrom being difficult and unsatisfactory by many other processes.

Contents.

I. INTRODUCTION.

1. The Dressing.
2. The Separation.
3. Cleansing and Sizing Contrivances.
4. Rotary Sizers.

II. REDUCTION.

1. Reduction of Ores.
2. Description of Batteries.
3. Details of a Battery.
4. Speed, Curve and Order of Lifts.
5. The Discharge of Batteries.
6. The Feeding of Batteries.
7. Reduction by Rolling Mills.
8. Grinding.
9. Pans with Plane Mullers.
10. Pans with Conical Mullers.
11. Pans with Tractory-Conical Mullers.
12. Pans with Perpendicular Mullers.

III. CONCENTRATION.

1. Concentration of Reduced Ore.
A. Concentration of the Grains (Jigging Stuff.)
2. Movable Jiggers.
3. Stationary Jiggers.
4. Continual Jiggers.
5. Rotary Machines.
B. Concentration of Ore Sands.
6. Assorting of Sands.
7. Feeding of Concentrator.
8. Stationary Concentrators.
9. Percussion Tables.
10. Oscillating and Shaking Tables.
11. Steady-Moving Concentrators.

IV. SPECIAL CONCENTRATION.

1. Concentration of Gold Ores.
2. Concentration of Silver Ores.
3. Concentration of Lead and other Ores.

V. CHLORINATION.

Methods of Dissolving and Precipitating the Gold from Sulphurets.

Chlorination at Reichenstein.
Chlorination at Schemnitz.
Calvert's Method for Auriferous Quartz.
Extraction of Gold, Silver and Copper.

This great work should be in the hands of every mining engineer in the country. It is the only manual in the language containing the latest improvements which Science has made in the important department of concentration, and a full and detailed account of the celebrated and successful Plattner chlorination process. Both parts of the book are illustrated with diagrams and plates, so that every intelligent engineer can erect apparatus or make working drawings for himself.

PRICE, $7 50.

FOR SALE BY

WESTERN & COMPANY,

37 Park Row, N. Y.,

Sole Agents for the Atlantic States.

COAL SHIPPERS.

POWELTON COAL AND IRON CO.,

SOLE MINERS AND SHIPPERS
Of the Celebrated

POWELTON

Semi-Bituminous Gas and Anthracite Coals.

104 WALNUT STREET, PHILADELPHIA.

BRANCH OFFICES:

New York, ing: 17 Doane street, Boston,
Cleveland, O., Trinity Build., Pittsburgh, Pa.
-6m-is Buffalo, N. Y.

G. B. Linderman & Co.,

MINERS,

SUGAR LOAF, LEHIGH COAL.

OFFICE:

50 TRINITY BUILDING,

may 23-1y 111 BROADWAY, N. Y.

SAMUEL BONNELL, JR.,

Offers for Sale his

SUGAR CREEK

AND

HONEY BROOK

Lehigh Coals,

OFFICE—43 AND 45 "TRINITY BUILDING,"
111 BROADWAY, N. Y.

HONEY BROOK COAL COMPANY,

Exclusive Miners and Shippers of the Celebrated

HONEY BROOK LEHIGH COAL,

No. 111 BROADWAY, NEW YORK.

JAS. H. LYLES, Agent,

Wharves, Port Johnson, N. J. Philadelphia Office, 209 Walnut Street.

ap20:1y **J. B. McCREARY, President.**

WILKESBARRE COAL,

DELIVERED DIRECT FROM THE MINES OF

The Wilkesbarre Coal and Iron Co.,

OR, FOR RESHIPMENT AT

HOBOKEN AND JERSEY CITY.

OFFICE—NO. 16 WALL STREET,

April 1-1y NEW YORK.

WHITE, FOWLER & SNOW,

Successors to JOHN WHITE & CO.,

Wilkesbarre and Lehigh Coal,

FOR STEAM AND FAMILY USE.

OFFICE,

ROOM NO. 75, 111 BROADWAY, (Trinity Building.)

JNO. WHITE LINDLEY H. FOWLER. LOUIS T. SNOW.

dec30ly

DAY, HUDDELL & CO.,

MINERS AND SHIPPERS OF

HARLEIGH LEHIGH COAL,

And the Celebrated

HICKORY, BROAD MOUNTAIN, EXCELSIOR, SHAMOKIN and NEW ENGLAND RED ASH.

OFFICES,

ROOM 51, TRINITY BUILDING, 111 Broadway.

Philadelphia, 109 WALNUT STREET.

Boston, 7 DOANE STREET

ap20-1y

RANDOLPH BROTHERS,

SOLE AGENTS OF THE ORIGINAL

SPRING MOUNTAIN LEHIGH COAL,

Extensively Used for Smelting Iron.

ROOMS, 28 AND 30, TRINITY BUILDING,

ap6-tf NEW YORK.

COXE BRO.'S & CO.

Cross Creek Colliery,

MINERS AND SHIPPERS

of the Celebrated Cross Creek

Free Burning Lehigh Red Ash Coal,

FROM THE BUCK MOUNTAIN VEIN.

OFFICES:

Philadelphia, No. 347 Walnut Street. | Drifton, Jeddo P. O. Luzerne Co., Pa.

Agent in New York, SAMUEL BONNELL, JR., Room 43, Trinity Building, 111 Broadway.

Feb. 1-1-y

COAL SHIPPERS.

Pier No. 14 North Pt. Richmond.

C. J. & J. H. EASTWICK & CO.,

SHIPPERS OF

WHITE AND RED ASH COAL.

NO. 228 DOCK STREET, PHILADELPHIA, and NO. 19 DOANE STREET, BOSTON.

BURNSIDE RED ASH,
SHAMOKIN WHITE ASH,
LOCUST MOUNTAIN WHITE ASH COAL.

jan9-1y-is s.a.

PINNAKINNICK COAL CO.,

CLARKSBURGH, WEST VIRGINIA.

The maximum yield of gas per ton of 2,240 pounds from this coal is 10,995 cubic feet, with an illuminating power equal to 21.10 standard candles; also, 36 bushels of coke, weighing 1,536 lbs., and 1.05 barrels coal tar.

Mines in good working order. Company free of debt. All orders promptly filled.

MINES FOR SALE IN FEE.

Address, Dr. J. W. RAMSAY,

Feb.13.3m. Clarkburgh, West Virginia.

THE DESPARD COAL COMPANY

OFFER THEIR SUPERIOR

DESPARD COAL

To Gas Light Companies throughout the country.

MINES IN HARRISON COUNTY, West Virginia.

WHARVES, LOCUST POINT, COMPANY'S OFFICE, } Baltimore.
No. 29 South Street,

Agents, PARMLE BROTHERS, No. 32 Pine street, New York.

BANGS & HORTON, No. 31 Doane street, Boston.

Among the consumers of Despard Coal we name: Manhattan Gas Light Company, New York; Metropolitan Gas Light Co., New York; Jersey City Gas Light Co., Jersey City, N. J.; Washington Gas Light Co., Washington, D. C.; Portland Gas Light Co., Portland, Maine.

☞ Reference to them is requested. May 30ly

WEST FAIRMONT GAS COAL MINES.

HENRY Y. ATTRILL, Proprietor.

Mines at Fairmont, Marion Co., West Va.

Oliver Jackson, Esq., Pres. First National Bank of Fairmont, Manager.

Wharves, Hankey's, Locust Point, Office, 35 S. Gay Street, } Baltimore, Md.

I offer this superior Coal to Gas Companies throughout the United States—*superior to any*. An analysis by Engineer Manhattan Gas Light Co. of New York, gave: Volatile matter, 37.0; fixed carbon, 59.0; ash, 4.0—100.0. The maximum yield of gas per ton of 2240 lbs was 9,681 feet. When the yield was restricted to 9,500 feet, the illuminating power of the gas was equal to 19.50 candles. The yield of coke was 40 bushels, weighing 1,500 lbs. One bushel of the hydrate of lime purified 4,180 feet of gas. Orders solicited from Gas Companies, Gas Manufacturers, and Shippers of Coal by the Cargo. nov28-6m

THE NEWBURGH ORREL COAL CO.

Mines at Newburgh, Preston Co., W. Va.

Company's Office, No 52 S. Gay St., Baltimore, Md.

C. OLIVER O'DONNELL, Pres't. G. W. MAHOOL, Sec't.

This Company offer their very superior Gas Coal at lowest market prices.

It yields 10,996 cubic feet of gas to the ton of 2,240 lbs., of good illuminating power, and of remarkable purity; one bushel of lime purifying 6,792 cubic feet, with a large amount of coke of good quality.

It has been for many years very extensively used by various Gas Companies in the United States, and we beg to refer to the Manhattan, Metropolitan, and New York Gas Light Companies of New York, the Brooklyn and Citizens' Gas Light Companies of Brooklyn, N. Y., the Baltimore Gas Light Company of Baltimore, Md., and Providence Gas Light Company, Providence, R. I.

The best dry coals shipped, and the promptest attention given to orders. dec5-tf-os

MISCELLANEOUS.

E & H. T. ANTHONY & CO

501 BROADWAY, NEW YORK.

Manufacturers of Photographic Materials and Albums.

EXTENSIVE DEALERS IN AND MANUFACTURERS OF STEREOSCOPES AND VIEWS.

Feb 1-3m

A Most Useful Invention.

Water-pails, Buckets, Spittoons, Wash-basins, &c., made of

PAPIER MACHE,

Warranted not to break, shrink, rust, leak, water-soak or rot. Call and see specimens at the rooms of the

American Papier Mache Manufacturing Company,

11 PINE STREET, NEW YORK CITY.

Post Office Box, 5,242. oct10-1y

Translations from and Correspondence in

FOREIGN LANGUAGES

Accurately and neatly done by

CHAS. R. DESILLES,

EDITORIAL ROOMS OF THE

JOURNAL OF MINING,

37 PARK ROW,

NEW YORK CITY.

Velocipedes.

THE MONOD PATTERN.

The best in use. Riding and Salesroom at 8 William st., New York.

dec26-3m G. H. MERCER & MONOD.

MISCELLANEOUS.

DUNCAN, SHERMAN & CO.,

BANKERS,

Corner of Pine and Nassau Streets, N.Y.

ISSUE CIRCULAR NOTES AND LETTERS OF CREDIT FOR TRAVELERS, AVAILABE IN ALL THE PRINCIPAL CITIES OF THE WORLD.

MERCANTILE CREDITS

FOR USE IN EUROPE, CHINA, ETC. ALSO MAKE

Transfers of Money to Europe and the Pacific Coast by Telegraph.

feb1:tf INTEREST ALLOWED ON DEPOSITS.

B. KREISCHER,

New York Fire Brick

AND

STATEN ISLAND

CLAY RETORT WORKS.

ESTABLISHED 1845.

OFFICE, 58 GOERCK STREET,

Corner Delancy Street, East River,

NEW YORK

mar28-1y-q

Drawing Instruments

OF EVERY DESCRIPTION.

Swiss, German Silver and Brass, separate and in cases. Presentation Cases made to order.

Transits, Levels, Surveyor's Compasses, T-Squares, Protractors, Winsor and Newton's and Osborne's Water Colors, Drawing Boards, etc., etc.

A Priced and Illustrated Catalogue sent free on application.

WM. Y. McALLISTER,

jan9-4:-is 728 Chestnut street, Philadelphia, Pa.

MUTUAL FRIEND

COOKING STOVE.

A PERFECT STOVE.

The Best and the Cheapest of all (so-called) first-class Stoves.

Also a variety of other Cooking and Heating Stoves adapted to every want.

New York Fire-Place Heater, Sanford's Challenge Heater, and Challenge Ranges.

MANUFACTURED BY THE

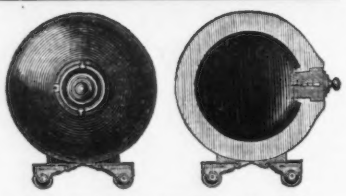
NATIONAL STOVE WORKS,

oct31-6mis 239 & 241 Water Street, N. Y.

MARVIN'S

SPHERICAL

CHROME IRON



BURGLAR

SAFES

CANNOT BE SLEDGED!
CANNOT BE WEDGED!
CANNOT BE DRILLED!

Call and See Them, or Send for Descriptive Circular.

MARVIN & Co.,

PRINCIPAL WAREHOUSES,

265 BROADWAY, N. Y.

721 Chestnut St. (MASONIC HALL,)

PHILADELPHIA.

108 Bank Street, Cleveland, Ohio.

And for sale by our Agents in the principal cities throughout the United States.

MISCELLANEOUS.

HEBBARD

Car Spring Co.

Right and Left

SPIRAL STEEL

CAR SPRING

M. B. WASHBURN

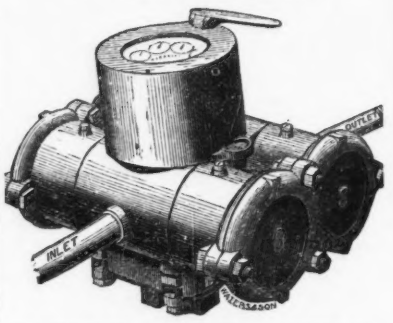
General Agent,

137 and 141 Elm Street,

New York City.

jan23 1y-isq

H. R. WORTHINGTON'S



PATENT WATER-METER.

This Meter is also Used for the Measurement of Oil.

IT COMBINES

ACCURACY, SIMPLICITY, AND REMARKABLE DURABILITY,

with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our larger cities.

HENRY R. WORTHINGTON,

sept13-1y No. 61 Beekman street, N. Y.

The Sampson Scale Company

NO. 240 Broadway, N. Y.

MANUFACTURE

and have constantly on hand for sale

WEIGH-LOCK, RAILROAD TRACK, HAY, COAL, CATTLE, WAREHOUSE, and every variety of SMALLER SCALES.

No scale before the public possesses the sensitiveness simplicity, rigidity, accuracy, durability, compactness, facility and exactness of adjustment and adaptability to any location which belong to the

dec5-3m-is SAMPSON COMBINATION.

OLMSTED'S IMPROVED

OILER.

ALWAYS RIGHT SIDE UP.

Warranted the most durable Oiler made. The spring cannot be "set" by use, or the Oiler injured by falling. These Oilers are made of heavy Tin, Brass and Copper, and are sold by the trade everywhere. Address

J. H. WHITE,

Newark, N. J.,

Manufacturer of SHEET and CAST METAL, small wares, Stationers' and Trunk makers, Hardware,

NOTIONS,

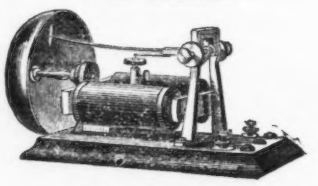
Patented Articles, &c., &c.

Dies and Tools, Fancy Hardware, &c., made to order.

jul18-1y

GUEST'S

ELECTRO MAGNETIC BURGLAR AND FIRE ALARM.



J. H. GUEST,

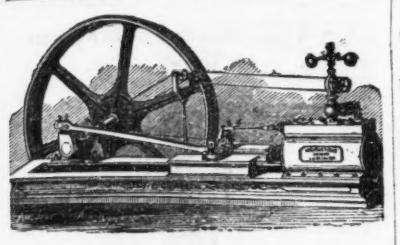
nov21-3m 81 Nassau Street, N. Y.

ED. SEARS'

Wood Engraving Establishment.

ENGRAVING DESIGNING AND Photographing on Wood, in all its branches, viz. Portraits, Fine Book Work, Machinery, Maps, Buildings Illustrated Catalogues, Views, &c. N. B. Special attention given to Color Work of all descriptions. 48 BEEKMAN STREET, New York.

STEAM ENGINES.



TODD & RAFFERTY,

GENERAL

MACHINERY MERCHANTS, ENGINEERS AND MACHINISTS.

Manufacturers of Stationary and Portable Steam Engines and Boilers; also Flax, Hemp, Tow, Oakum, and

ROPE MACHINERY, MILL GEARING, SHAFTING.

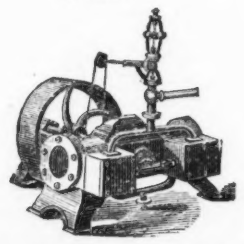
Lathes, Planers, Drills, Chucks, &c., Iron and Brass Castings. Judson's & Snow's Patent Governors constantly on hand.

OFFICE AND WAREROOMS, NO 4 DEY STREET, N. Y.

Office and Works, Patterson N. J.

JOSEPH C. TODD. oct27:6m PHILIP RAFFERTY

ALL IN SEARCH OF ENGINES SHOULD EXAMINE



"THE RUDDICK,"

The most compact, simplest and

CHEAPEST IN THE WORLD.

DEVEREUX, THOMPSON & CO.,
82 Cedar Street, N. Y.
Or A. F. DEVEREUX & CO., Boston,
Sole Manufacturers.

No experiment. Old approved methods in all its parts. nov29:1y

---

PORTABLE AND STATIONARY

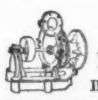
STEAM ENGINES.

OILERS, CIRCULAR SAW MILLS, MILL WORKS, COTTON GINS, COTTON GIN MATERIALS.

Manufactured by the

Albertson & Douglass Machine Co.,

NEW LONDON, CONN. mar16:1v



ANDREWS'

PATENT ENGINES,

BOILERS, PUMPS, HOISTERS

OSCILLATING ENGINES, run at great speed. Sizes 1-2 to 250 Horse-Power.

SMOKE-BURNING AND SUPER-HEATING BOILERS are economical and Safe.

CENTRIFUGAL PUMPS, pass Sand, Coal, Corn, Gravel, &c., without injury. Capacity 90 to 40,000 galls. per minute.

HOISTING MACHINES, run without noise; speed changed or reversed instantaneously.

ALL COMPACT, LIGHT, and DURABLE.

Address manufacturers,

WM. D. ANDREWS & BRO.,

july1-1y 414 WATER STREET, NEW YORK.

ATLANTIC

STEAM ENGINE WORKS,

IRON AND BRASS FOUNDERS.

MANUFACTURERS OF

Steam Engines, Boilers, Sugar Mills, Tanks, Linseed and Cotton seed Oil Presses, and Machinery used in the Arts and Manufactures.

CORNER WATER AND ADAMS STREETS, BROOKLYN, N. Y.

R. B. DUYCKINCK, Treas.

WM. ARTHUR, Pres.

jan13-1y

PORTABLE STEAM ENGINES,

COMBINING the Maximum of efficiency, durability and economy with the minimum of weight and price. They are widely and favorably known, more than 600 being in use. All warranted satisfactory, or no sale. Descriptive circulars sent on application. Address

J. C. HOADLEY & Co.,

ov10-6mo.ls LAWRENCE, MASS.

MACHINERY.

JOHN ROBERTSON & CO.,

TUBAL CAIN IRON WORKS,

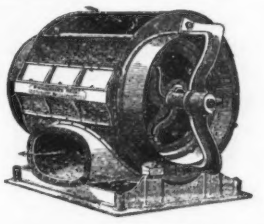
115 & 117 WATER STREET, BROOKLYN, N. Y.,

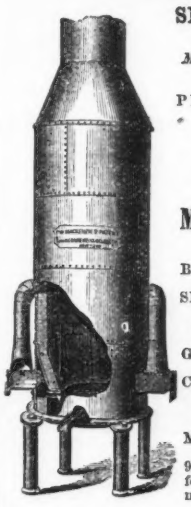
MANUFACTURE

Machinery for making Lead Pipe, Hydraulic Presses for Cotton and Linseed Oil, Adamantine, Paper, Tobacco, etc. Engines, Sugar Mills, Shafting, Pulleys, Gearing, Pumps, Rolling Mills, and all kinds of Machinery in general. Estimates furnished for all kinds of Machine work. Drawings and Patterns made to order.

JOBBING PROMPTLY ATTENDED TO.

Oct31-6m





SMITH & SAYRE

MANUFACTURING CO.,

PROPRIETORS AND MANUFACTURERS

OF THE

Mackenzie Patent

BLOWER and CUPOLA and SMELTING FURNACE.

Also, Mackenzie's Patent GAS EXHAUSTER and COMPENSATOR. Address

SMITH & SAYRE

MANUFACTURING COMPANY,

95 Liberty street, N. Y. Send for illustrated pamphlet. mar26:1y

---

HOWARD'S SECTIONAL BOILER.

Illustrated in the AMERICAN JOURNAL OF MINING of January 16th, 1869.

For information, address

AUSTIN & GERMAIN,
37 Park Row, N. Y.

jan16-6mis

McNAB & HARLIN,

MANUFACTURERS OF

BRASS COCKS,

PLUMBERS' BRASS WORK,

Wrought Iron Pipe, Fittings, &c.

No. 86 John St. New York. Oct18:6m

SCOVILL MANUFACTURING CO.

MANUFACTURERS OF

SHEET BRASS, GERMAN SILVER,

PLATED METAL,

BRASS BUTT HINGES,

Gilt, Lasting, Brocade and Fancy Dress Buttons, Kerosene Oil Burners, and Lamp Trimmings.

And importers and dealers in every description of

Photographic Goods,

No. 4 Beekman street and 36 Park Row, New York. Manufactory, Waterbury, Conn. sept21-1y

---

HYDRAULIC WORKS.

MANUFACTORY,

BROOKLYN, N. Y.

Steam Pumping Engines, Single and Duplex, Worthington's Patent, for all purposes, such as Water Works Engines, Condensing or Non-condensing; Air and Circulating Pumps, for Marine Engines; Blowing Engines; Vacuum Pumps, Stationary and Portable Steam Fire Engines, Boiler Feed Pumps, Wrecking Pumps,

Mining Pumps,

Water Meters, Oil Meters; Water Pressure Engines; Stamp Mills for Gold, Silver and Copper Ore; Eaton's Patent Amalgamators for Gold and Silver; Steam and Gas Pipe, Valves, Fittings, &c. Iron and Brass Castings.

☞ Send for Circular.

H. R. WORTHINGTON,
61 Beekman street, New York.

feb1-1y

FRYER'S

AIR PUMP

Compresses Air or Gas to any Required Pressure.

Fryer's Improved Water Pump.

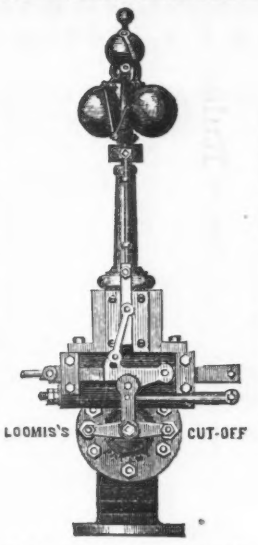
MANUFACTURED AND SOLD BY

FRYER BROS. & CO.,

jan16.1y NO. 10 WALL STREET, ROOM 43, N. Y.

MACHINERY.

LOOMIS'
STEAM ENGINE AND CUT-OFF,



ALSO, STATIONARY AND PORTABLE ENGINES,

NEW AND SECOND HAND

STEAM BOILERS,

STEAM PUMPS,

AND

STEAM GAUGES,

SAFETY VALVES,

Lock-up and Safety Valves,

and everything pertaining to Steam Engines. Also,

Belting, Machinists' Tools,

WOOD WORKING MACHINERY, &c.

Particular attention paid to the location of Machinery, with view to Economy. Address

KELLOGG H. LOOMIS,

sept5-1y 117 Liberty street, N. Y. City

HEWES & PHILLIPS,

IRON WORKS,

Corner of Orange and Ogden Streets, Newark, N. J.

Manufacturers of the mots improved

HIGH AND LOW PRESSURE, STATIONARY, PORTABLE AND MARINE

Steam Engines and Boilers,

MECHANICS' TOOLS OF ALL DESCRIPTIONS, AND ALL KINDS OF GENERAL MACHINERY.

Large asssortment of Steam Engines and Mechanics' Tools constantly on hand. je13:6m

---

The Novelty Iron Works.

Foot of East 12th, 13th and 14th Streets.

BRANCH OFFICE.....79 Liberty Street.

MANUFACTURE

STEAM ENGINES AND BOILERS,

COTTON, SUGAR AND RICE MACHINERY,

of the most improved kinds. All kinds of

BRASS AND COPPER WORK,

INDICATORS, CLOCKS, STEAM GAUGES.

GAUGE COCKS, &C.

Large stock of patterns of SPUR, BEVEL, and MITRE WHEELS, PULLIES, and all sorts of MILL WORK. feb1:1y

---

CLINTON IRON FOUNDRY,

502 and 504 Water, and 239 and 241 Cherry Streets,

Between Pike and Rutgers Slips, New York.

LEADER PIPES,
PULLEYS, HANGERS,
GRATE BARS,
MACHINERY PATTERNS
OF ALL KINDS. ALSO,

LOAM AND DRY SAND CASTINGS

of every description, for mining purposes, made to order at the shortest notice and on reasonable terms.

W. MO'KINLEY. R. SMACK,

oct26-1y

The most durable and reliable GRATE BAR now in use. Send for Circular.

HUTCHINSON & LAWRENCE,
8 Dey street, New York.

☞ Please state you saw this in the AMERICAN JOURNAL OF MINING. jan23-4t-os

---

IRON & WOOD WORKING MACHINERY

TURBINE WATER-WHEELS.

Lucius W. Pond,

NO. 98 LIBERTY STREET, NEW YORK,

nov2-1y-q and WORCESTER, MASS.

STEAM PUMPS.

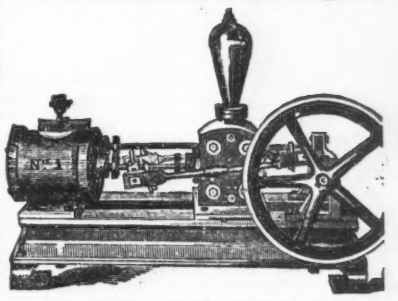
THE WOODWARD

Steam Pump Manufacturing Co.,

MANUFACTURERS OF THE

Woodward Patent Improved Safety

Steam Pump and Fire Engine.



STEAM, WATER, AND GAS FITTINGS OF ALL KINDS.

Also dealers in WROUGHT IRON PIPE, BOILER TUBES, etc. Hotels, Churches, Factories, and Public Buildings, Heated by Steam, Low Pressure.

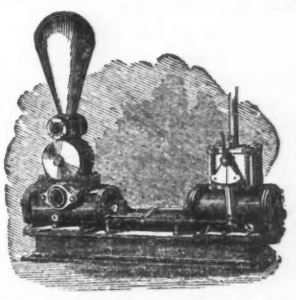
Woodward Building, 76, and 78 Centre Street, corner Worth Street, New York. Formerly 77 Beekman Stree

Mar14-1y GEO. M. WOODWARD, President.

NIAGARA STEAM PUMP WORKS

FIRST PREMIUM AT FAIR.

AMERICAN INSTITUTE 1867.



CHARLES B. HARDICK,

SUCCESSORS TO

CAMPBELL & HARDICK, BROTHERS,

NO. 9 ADAMS STREET BROOKLYN, N. Y.

Send for circular. f13:1y

J. CLAYTON'S

Patent Steam Pumps,

HAND PUMP AND STEAM ENGINE COMBINED.

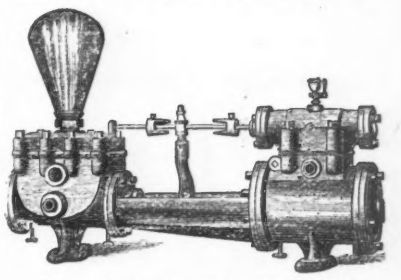
These Pumps contain every desirable quality for Steam Pumps, are made of the best material, and in the best manner, and are the cheapest first-class pumps in the market. For cut and description see JOURNAL OF MINING, No 18. Vol. 1. Please send for circular.

All sizes of pumps made to order at the shortest notice.

JAMES CLAYTON, 24 and 26 Water Street,

nov18:tf Brooklyn, N. Y.

KNOWLES' PATENT STEAM PUMP.



FACTORIES AT WARREN, MASS.

WAREHOUSE NO. 126 LIBERTY STREET, NEW YORK.

Air Pumps, Blowing Engines, Hydraulic Pressure Pumps, New Locomotive Pumps, Fire Pumps, Boiler Feed, Marine, Drainage, Sugar-work, Brewery, Distillery, Oil and Wrecking Pumps.

Improved Horizontal and Vertical

MINING PUMPS

(Working with Plunges, and especially arranged for pumping water containing dirty or gritty matter.)

Pumps for every possible duty, and all fully guaranteed. Also,

Knowles' Patent Safety Boiler Feeder.

Send for an Illustrated Circular. jly10-1y

Hawes & Hersey,

Manufacturers of Stationary, Portable and Hoisting

STEAM ENGINES,

HERSEY'S PATENT ROTARY PUMPS,

FORCE, LIFT AND AIR PUMPS,

Sugar-House Machinery, Myer's Moulding Machines, Screw Bolts, and General Machinery,

CORNER OF SECOND AND E STREETS,

South Boston.

WALTER E. HAWES, CHAS. H. HERSEY, FRANCIS C HERSEY.

aug8-6m

METALLURGY.

W. S. KEYES,
Garduate of School of Mining, Frieberg.

Having had several years' practical experience in the mines and reduction works of Mexico, California, and Montana, offers to mining companies his services as

SUPERINTENDENT, AGENT, OR CONSULTING ENGINEER.

Will examine and report upon mines, furnish working plans, or practically direct smelting or amalgamation.

Can furnish the highest references. Would not object to go to Mexico or South America. Address, by letter or telegraph, W. S. KEYES, M. E., Helena, M. T. oct25:6m

R. P. ROTHWELL,
Mining and Civil Engineer and METALLURGIST,

From the Imperial School of Mines, Paris, Member of the Geological Society of France, &c.

OFFICE, WILKESBARRE, PA.

Having had a large practical experience in Europe and this country, is prepared to examine and report on all kinds of Mineral property, superintend Mines and Metallurgical Works, Assay Ores, &c. 18-2-qp

LABORATORY OF TECHNICAL CHEMISTRY.

OFFICE 37 PARK ROW, AMERICAN JOURNAL OF MINING, NEW YORK.

Assays and Analyses of all kinds, Practical Advice, and investigations in the Useful Arts. Reports, Instructions, etc.

DR. ADOLPH OTT.

☞ Written communications preferred. nov28-tf

HUEPEDEN & WOLTERS,
Analytical Chemists and Assayers,

AND CONSULTING ENGINEERS,

Central City, Colorado.

Examinations of, and Reports on Mineral Lands and Mines, furnished on application. Analyses and Assays of Ores executed with accuracy. Plans and specifications furnished for the erection of Smelting Works, Desulphurizing Furnaces, &c., &c. 24-4-tf

I. WALZ, PH. D.,

(SUCCESSOR TO HENRY KRAFT,)

ANALYTICAL AND CONSULTING CHEMIST

au3-tf No. 18 Exchange Place.

IMPORTANT TO MINERS.

Every description of Analysis and Assays carefully attended to, and returns promptly made, by

WESTERN & COMPANY,

No. 37 Park Row, New York City. P. O. 5969.

BENJAMIN SMITH LYMAN,

MINING ENGINEER,

GEOLOGIST AND TOPOGRAPHER

No. 139 South Fifth Street, Philadelphia.

SCHOOL OF MINES, COLUMBIA COLLEGE.

FACULTY.—F. A. P. BARNARD, S.T.D., LL.D., PRESIDENT; T. EGLESTON, JR., E. M., Mineralogy and Metallurgy; F. L. VINTON, E.M., Mining Engineering; C. F. CHANDLER, PH. D., Analytical and Applied Chemistry; JOHN TORREY, M.D., LL.D., Botany; C. A. JOY PH. D., General Chemistry; W. G. PECK, LL.D. Mechanics; J. H. VAN AMRINGE, A.M., Mathematics; O. N. ROOD, A.M., Physics; J. S. NEWBERRY, M.D., LL.D., Geology and Paleontology. Regular courses for Mining Engineering; Metallurgy; Geology and Natural History; Analytical and Applied Chemistry; Special students received for any of the branches taught. Particular attention paid to assaying. For further information and catalogues, apply to

DR. C. F. CHANDLER, Dean of the Faculty. nov21-1y-is

MANHATTAN METALLURGICAL WORKS

No. 552 & 554 West 28th Street, New York.

Assays of Gold, Silver, Copper, Lead and Iron Ores—Analysis of Ores, Minerals, etc. Reduction of Ores by Smelting and Amalgamation Process, in quantities of 100 lbs. to 25, 50, 100 or 500 tons.

For engagement and terms apply at the works.

CHAS. F. SECOR, Superintendent.

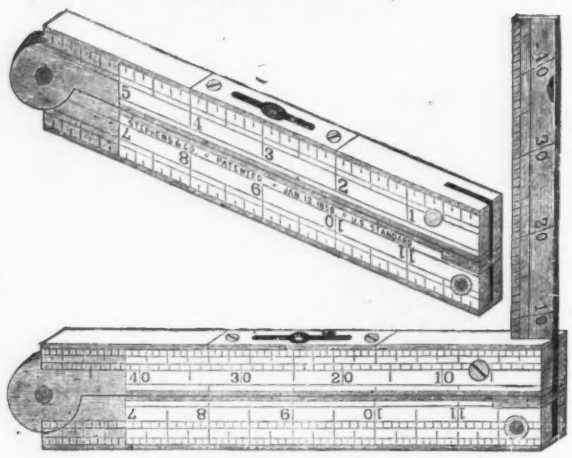
Developed Silver Mine

One of the most Extensive and Valuable that has ever been disovered. The ores from which are equal in richness to those from the famous mines on the White district. For Sale by

J. N. HAYES,
80 Broadway, Basement.

STEPHENS & CO.,

MANUFACTURERS OF



Boxwood and Ivory Rules. UNITED STATES STANDARD

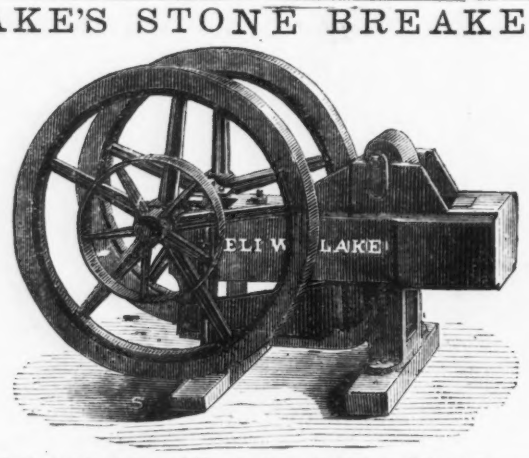
ALSO EXCLUSIVE MANUFACTURERS OF

L. C. Stephens' Patent Combination Rule.

Riverton, Connecticut.

These goods can be found in the principal hardware stores, or we will send them direct by mail on receipt of $4 each.

BLAKE'S STONE BREAKER.



The office of this Machine is to break Ores and Minerals of every kind into small fragments, preparatory to their further comminution by other machinery.

This machine has now been in use, enduring the severest tests, for the last ten years, during which time it has been introduced into almost every country on the globe, and is everywhere received with great and increasing favor as a labor-saving machine of the first order.

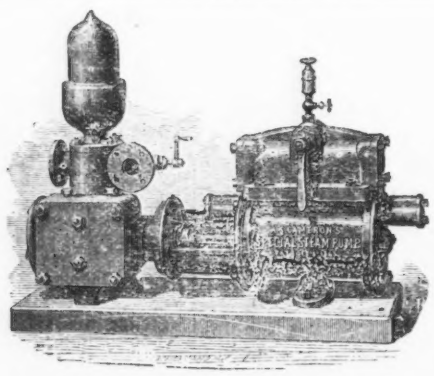
Illustrated circulars, fully describing the machine, with ample testimonials to its efficiency and utility, will be furnished on application, by letter, to the undersigned.

☞ The Patents obtained for this machine in the United States and in England having been fully sustained by the courts, after well contested suits in both countries, all persons are hereby cautioned not to violate them; and they are informed that every machine now in use or offered for sale, not made by us, in which the ores are crushed between upright convergent faces or jaws actuated by a revolving shaft and fly wheel, are made and used in violation of our patent.

mar14-1y 851 **BLAKE BROTHERS, New Haven, Conn.**

STEAM PUMPS,

IN EVERY POSSIBLE VARIETY.

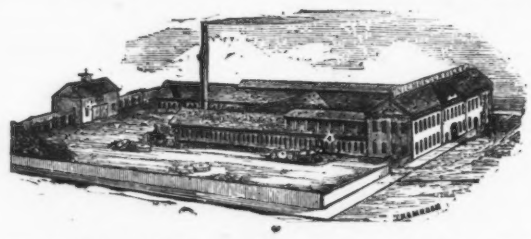


WORKS FOOT OF EAST 25D STREET. NEW YORK CITY.

A. S. CAMERON & CO.,

Aug22-1yis

NICHOLSON FILE CO., PROVIDENCE, R. I.



Aug22-6m **Warrant Every File, and use only Best English Steel.**

KUSTEL'S NEW WORK.

A Treatise on the Concentration of all Kinds of Ores.

INCLUDING THE

Chlorination Process for Gold-Bearing Sulphurets, &c.

BY GUIDO KUSTEL,

(Mining Engineer and Metallurgist, author of "Nevada and California Processes of Silver and Gold Extraction.")

This great work should be in the hands of every mining engineer in the country. It is the only manual in the language containing the latest improvements which Science has made in the important department of concentration, and a full and detailed account of the celebrated and successful Plattner chlorination process. Both parts of the book are illustrated with diagrams and plates, so that every intelligent engineer can erect apparatus or make working drawings for himself.

PRICE, $7.50.

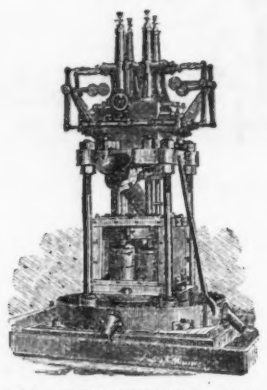
For sale by **WESTERN & COMPANY,**

Sole Agents for the Atlantic States, at the office of the AMERICAN JOURNAL OF MINING. feb2

METALLURGY.

New York Steam Engine Company

Manufacturers of



STEAM STAMPING MILLS,

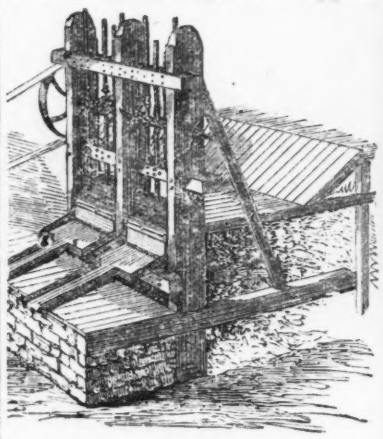
Stationary and Portable Engines,

Engine Lathes, Planers, Bolt Cutters, Upright Drills and Machinist's Tools of all descriptions.

OFFICE AND WAREROOMS,

Jan2-1yis Nos. 126 and 128 Chambers St., N. Y.

Mining Machinery and Supplies.



CALIFORNIA STAMP MILLS,

With Iron or Wood Frames.

WHEELER & RANDALL'S

PATENT EXCELSIOR

GRINDER AND AMALGAMATOR.

Conoidal Separator and Tabular Concentrator,

With Self-Discharging Quicksilver Apparatus.

HEPBURN & PETERSON'S

PAN AND SEPARATOR.

Rock Breakers, Retorts, Engines, Boilers, and Shafting, Shoes and Dies of the best White Iron and Steel.

Plans, Drawings and Specifications for Quartz Mills furnished, and practical information in Mining, Milling, Amalgamating and Concentrating Gold and Silver Ores given.

Agents for UNION IRON WORKS, San Francisco.

MOREY, SPERRY & CO., 95 Liberty Street, New York.

F. MOREY. J. A. SPERRY. P. M. RANDALL.

oct10:1yis

KROMS DRY ORE CONCENTRATOR.

Concentration by means of Air

has long been attempted, but hitherto without satisfactory results. **S. R. KROM** has invented and patented machines which concentrate the various ores more perfectly than can be done by any other means.

The **Mechanical Combinations** are extremely simple, the machines therefore correspondingly durable. A continuous self-delivery of ore on one side and tailings on the other is effected, hence very little attention is required, except keeping the hopper supplied with ore. The power of one man is sufficient to operate a machine that will concentrate one ton per hour.

Parties Interested in Mining are invited to call at No. 40 West Eighteenth street, New York, where they may see a machine in operation, and have samples of their own ores crushed and concentrated.

Illustrated Circulars may be had on application to

STEPHEN R KROM

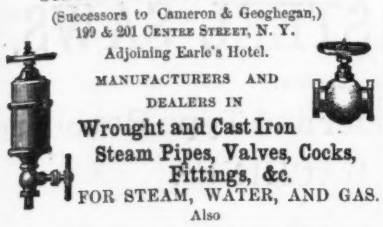
jan10-3mos-is No. 40 West 18th street, N. Y.

TO PARTIES ENGAGED IN MINING.—Plans and Specifications for the erection of Smelting Works for the reduction of Gold, Silver, and Lead Ores, furnished. Specifications furnished for Fluxes required by and adapted to the various combinations which present themselves in different ores, as ascertained by analysis. Parties requiring a process of amalgamation can make arrangements with the undersigned to go to the location of the particular mine, at which it is to be used, and test his Amalgamator in quantities of 20, 50, or 200 tons of the ore of such mine. Machinery, viz. Stamps for Dry and Wet Crushing, Crackers, Concentrators, Pumps, &c., furnished.

CHAS. F. SECOR,
No. 554 West 28th Street N. Y.
Address letters No. 415 Fifth Avenue. oct3-tf

MACHINERY.

STEPHEN J. GEOGHEGAN & CO.
(Successors to Cameron & Geoghegan,)
199 & 201 CENTRE STREET, N. Y.
Adjoining Earle's Hotel.



MANUFACTURERS AND DEALERS IN

Wrought and Cast Iron Steam Pipes, Valves, Cocks, Fittings, &c.

FOR STEAM, WATER, AND GAS.
Also
High and Low Pressure Steam Heating Apparatus applied to
FACTORIES, PUBLIC BUILDINGS, STORES AND DWELLINGS.
Manufacturers and Sole Agents for
STORER'S PATENT LUBRICATORS,
for supplying lubricating matter in bulk to the cylinders of Marine and Stationary Steam Engines, Steam Pumps, Heaters, Steam Traps, Pipe Tongs, Pipes, Vises, Stocks, and Dies, &c., &c.
We make Steam and Gas Fitter's tools a speciality.
Coils for Brewers, Distillers, Soap Factories, &c., &c.
STEAM PUMPS.
Send for Illustrated Circular. feb17:1y

JOHN P. GRUBER'S

182, 184, 186 and 188 Chatham Square,
Corner of Mott Street, **NEW YORK.**
RECEIVED THE FIRST PREMIUM FOR FILTERING APPARATUS, WATER WORKS AND SCALES.
may16:1y

LINDSAY, WALTON & CO.,
Successors to WALTON & LEONARD,
Machinists' and Railroad Supplies,
METALS, TOOLS AND HARDWARE,
NO. 58 JOHN STREET, NEW YORK.

AGENTS FOR THE SALE OF
American Bolt Co.'s Bolt, Nut Washers, &c.
Sturtevant's, Pressure Blowers, Taft's Smith's Shears, Packer's and Walworth's Ratchets, Harrington's Patent Tuyere.
Patent Differential Pulleys, Green Works, Patent Wrenches.
Dudgeon's Patent Hydraulic Jacks and Tube Expanders.
Dixon's Crucibles, Wellington Mills Emery and Emery Cloth.
Iron Pully Blocks, Twist Drills, Portable Forges, &c.
AND A LARGE ASSORTMENT OF
Stubb's Tools and Files and Supplies for Railroads, Engineers, Manufacturers and Machinists.
J. P. LINDSAY. J. H. LYLES, JOS. J. WALTON.
dec12:1y

MERRICK & SONS'
SOUTHWARK FOUNDERY,
No. 420 Washington Avenue, Philadelphia.
William Wright's Patent Variable Cut Off Steam Engine, Regulated by the Governor. Merrick's Safety Hoisting Machine, Patented June, 1868. David Joy's Patent Valveless Steam Hammer. D. M. Watson's Patent Self-Centering, Self-Balancing Centrifugal Sugar Draining Machine, and Hydro Extractor for Cotton and Woolen Manufacturers. Nov15-1y

---

LINDSAY'S PATENT.

The merits of this Wrench are too well known to need comment. Go to the nearest hardware store and LOOK AT IT BEFORE PURCHASING ANY OTHER, or send for illustrated circular to
MANVEL & LINDSAY CO.,
oc 12-1y 58 John Street, New York.

MOTIVE POWER.

THE Greatest Hand-Power Machine which is in existence, and can be used wherever power is needed. H. Hassenpflug's Gig and Circular Saw Combined, will cut wood from 1 to 4 in. thick, and 1 in., as fast as by steam. The Gig Saw of the above Machine will cut scrolls and wagon fellies any thickness, with the greatest facility. Price for complete Machine, $165. The Machine, with only circular saw, will cost only $135. The movement can be applied to any other machine where power is needed. Price $50. For further particulars, apply to HASSENPFLUG BROTHERS,
No. 211 Canal Street, New York. Sept26-3mis

MACHINERY.

CIRCULAR SAWS
WITH
EMERSON'S PATENT MOVABLE TEETH.

These saws are meeting with unprecedented success, and their great superiority over every other kind, both as to efficiency and economy is now fully established.
ALSO,
Emerson's Patent Perforated Circular and Long Saws.
(All Gumming avoided.) And
EMERSON'S PATENT ADJUSTABLE SWAGE,
for Spreading, Sharpening, and Shaping the teeth of all Splitting Saws. Price $5. Manufactured by the
AMERICAN SAW COMPANY,
Office No. 2 Jacob Street, near Ferry street, N. Y.
Factory, Trenton, N. J. Branch office for Pacific Coast, No 606 Front street, San Francisco, Cal.
Send for new Descriptive Pamphlet and Price List.
july1-1y

INCRUSTATIONS
prevented by WINAN'S BOILER POWDER, 11 Wall street, New York.
T. S. POST & Co., Benham, Texas, say: "Since using Winans' Powder, we save ONE cord of wood per day, and have better steam, and would not be without the article for ten times its cost."
The Cleveland (Ohio) Paper Mills removed scale 22 inches long by 9 wide and 1¼ in. thick.
GAYLORD & Co., Portsmouth, Ohio, have used it for 10 years (3,000 pounds yearly) without injury.
Beware of imitations. H. N. WINANS,
11 Wall St., N. Y.

ALLYN'S PATENT SALAMANDER ALARM GAUGE,
For the Prevention of Steam Boiler Explosions.
ALLYN, FERGUSON & CO.
F. T. ALLYN, General Agent,
Oct31-6m 41 Pine Street, New York City.

FILE-COVERS. FILE-COVERS.
FILE-COVERS. FILE-COVERS.
FILE-COVERS. FILE-COVERS.
For preserving the numbers of the AMERICAN JOURNAL OF MINING. Price $1,50. For sale by WESTERN & CO
37 Park Row, N. Y

JOHN GALT.
Wholesale Dealer in Roofing Slate.
SOLE AGENT FOR THE
EAGLE SLATE COMPANY OF VERMONT,
Who produce Purple, Green, and Red ROOFING SLATE. Sole Agent for New York and the West for the
CHAPMAN SLATE CO. OF PENNSYLVANIA.
Who produce a Superior Black and Dark Blue Slate; also Sole Agent for New York and the West for the
LEHIGH SLATE CO. OF PENNSYLVANIA.
GENERAL DEPOT,
Cor. Tenth Avenue and Twelfth Street, N. Y City.
Established in 1850
BRANCH DEPOTS.
Buffalo: Jas. W. Chapman, Terrace Square.
Chicago: James Parker, corner Franklin and Washington Streets.
Charleston, S. C.: C. J. Demorest, East Bay, near Wentworth Street.
New Orleans: J. J. Lee, 368 Magazine Street.
☞ I am prepared to give parties the prices of Slate delivered throughout the United States at the Railroad Station.
Orders by mail receive prompt attention. jan1:1y

AGENTS and Canvassers Wanted
IN EVERY CITY AND TOWN IN THE
UNITED STATES,
FOR THE
American Journal of Mining.
Liberal inducements. Specimens sent on receipt of Ten Cents. Address
WESTERN & COMPANY,
37 PARK ROW, N. Y.

PUBLICATIONS.

SUBSCRIBE FOR AND ADVERTISE IN THE
American Journal of Mining,
THE BEST AND LARGEST PAPER OF THE KIND IN THE UNITED STATES, NOW IN ITS THIRD YEAR.

The AMERICAN JOURNAL OF MINING is the only paper in the United States that represents ALL the various mining interests of the country in a complete, satisfactory, and trustworthy manner. It should therefore be in the hands of EVERY ONE who desires to be informed upon, and hence able to profit by a knowledge of the subjects of which it treats, viz: our vast mineral resources, and the best methods, direct and indirect, by means of which they may become an unfailing source of individual and national wealth.

Published every Saturday in New York City. Only $4 a year.

SPECIAL AGENTS AUTHORIZED TO RECEIVE SUBSCRIPTIONS AND ADVERTISEMENTS.

MASSACHUSETTS.—S. R. NILES, No. 11 Scollay's Building, Court street, Boston. M. A. Lathrop, Lowell.
MICHIGAN.—J. W. CROZER, Ontonagon.
MONTANA.—WILLIAM Y. LOVELL, Virginia City.
OHIO.—G. F. SADD & Co., No. 13 West Third Cincinnati, Ohio.
NEVADA.—J. D. EMERSLEY, Austin.
COLORADO.—GEO. TRITCH, Denver City.
CALIFORNIA.—W. E. LOOMIS, San Francisco.
PENNSYLVANIA.—GEORGE E. CUMMINGS, 154 South Fourth street; T. R. CALLENDER, cor. 3rd and Walnut streets, Philadelphia; W. H. DAVIS, Easton, Pa.
NOVA SCOTIA.—GEORGE E. MORTON & Co. No. 185 Hollis street, Halifax.
ENGLAND.—FREDERICK ALGAR, 11 Clements Lane, Lombard street, London.
MEXICO.—JAMES SULLIVAN, City of Mexico; JUAN CARREDANO, Vera Cruz; JACINTO QUIROS, Acapulco.
SOUTH AMERICA.—COLVILLE DAWSON & Co., 271 Calle de la Union, Lima, Peru; M. NAVARRO DE VILLALBA, Rio de Janeiro, Brazil; LUCIEN HIJO, Buenos Ayres, Argentine Republic.
JUBA.—THOS. W. WILSON, Havana.

DEALERS AGENTS.

THE AMERICAN NEWS COMPANY, 121 Nassau st N. Y.
THE NEW YORK NEWS CO., 10 Spruce Street, N.Y.

$1.00 **$1.00**
THE
HOUSEHOLD
Especially devoted to the interests of the American housewife. Containing practical hints and suggestions for the Veranda, the Drawing Room, the Dressing Room, the Library, the Conservatory, the Nursery, the Dispensary, the Kitchen, and the Parlor. Only $1 per year. November and December Numbers FREE to new subscribers Specimen copies FREE. Agents wanted.
GEO. E. CROWELL, Publisher,
nov28-tf-is Brattleboro, Vt.

El Correo Hispano-Americano,
(Spanish-American Journal,)
[Devoted to
Commerce,
Railroads,
Manufactures,
Mining, &c., &c.
The only representative of American interests in the Spanish Language in Mexico, Cuba, Spain and South America.
Published on the First of every Month.
EL CORREO HISPANO-AMERICANO is designed to bring about an intimate relation between the producers in our own, and the consumers in the Spanish-American countries. This is effected by describing and illustrating machines of American manufacture, and by the dissemination of useful information upon the subjects to which it is devoted. Our manufacturers will find it greatly to their advantage to make use of its advertising columns.
Terms--$1.50 per Year, Gold; 15 Cents per Copy.
Advertising, 75 cents per line, each insertion.
WESTERN & Co., Publishers,
sep19-tf 37 Park Row, New York

The Annual of Scientific Discovery.
The Annual of Scientific Discovery.
The Annual of Scientific Discovery.
FOR 1868.
For sale by WESTERN & CO. Sent on receipt of price, TWO DOLLARS.

MISCELLANEOUS.

NOW READY,
THIRD EDITION, SEVENTH THOUSAND, REVISED, ENLARGED, AND IMPROVED,
Hopton's Conversations on Mines,
BETWEEN
FATHER AND SON.
ENLARGED FROM 112 TO 192 PAGES.
The Following are the Contents:

Air, why it is propelled down, into, and around the workings
" Quantity of, produced by the furnace
" Friction of
" The great friction of, produced by one mode of ventilation, and how reduced by another
" Pure added to impure (plans)
" Splitting of (plans)
" One current of (plans)
" One current of, and how to adopt separate currents (plan)
" Dividing of, but not into "separate and distinct" current (plans)
" Crossings (see H on plans)
" Weight of, in shafts
" How to find the weight of
" Table of pressure in shafts
" Expansion of
" Its velocity and force
" Rush of, into each division
" Quantity produced by natural ventilation
" Splitting, why it should be adopted
" Splitting, why the workmen object to Mr. Hopton adopting the mode
Anemometer, measurement of air by, engraving of
Area of a pit, how to find
Barometers, showing the time of an outlet of gas in mines (engraving)
Bricks, how to find the number in the walling of a shaft
Buddle's plan
Circumference of a pit, how to find
Coal, several ways of working it out, and why many methods of working it out are adopted
" Working out in banks (plans)
" Working it out in following up banks (plan)
" Working out in pillars (plans)
" Working out in long wall (plans)
" Working out in drifts (plans)
" Working out with no regularity (plan)
" Working out by the "end way" or in endings (plan)
Cubical contents of a pit, how to find
Dialing, the mode of
Dials, several engravings
" How constructed
" How fixed in mine surveying
" Needle, its variations
Diameter of shaft
Dip of mine, how to find and lay on plan
Explosion, the power of an
" At Lund-hill, in what part of the mine it was supposed to take place (plan)
" How the power may be diminished
Furnace, how to find the horses power of
" The place of fixing, to produce the largest ventilating current
" Engravings of ground floor, front and back view
" Remarks upon
Gases, (Carbonic acid) composition of
" Do properties of
" (After, or choke damp) composition of
" (Carburetted hydrogen) do
" Choke damp and carbonic acid, not one and the same in quality
" The effect produced on people by inhaling such
" The quantity required for an explosive mixture
" The elasticity of
" The weight of
" The nature and quality of
" Why some mines generate and produce more than others
" Why some mines generate a mixture of
Goaf, or gob, how tramrods are made through (plan)
Lund-hill (plan)
Managers, who are best competent to manage mines
Miscellaneous questions
Natural ventilation
Planning, how workings are laid on the plan
Regulators, how to find open space
Regulations (see R on plans)
Safety Lamps, why flame will not penetrate through engraving of
Sections on mechanical ventilation
Summary of accidents
Surveying, how mines are with the dial
Surveying, how mines are with the theodolite
Tables of weights and measures
Temperature on surface
Temperature in mines
Temperature, difference of between down and up-cast
Theodolites for mine surveying
Theodolites, how constructed
Theodolites, the magnetic needle dispensed with, and how workings are laid on plan, with Theodolite surveying
Theodolites, how mines are surveyed with them
Up-cast larger than down-cast (plan)
Ventilating mines by mechanical power
Ventilation, several ways of
Weather, how a change of effects the workings
Workmen, capabilities of

Testimonials, Reviews, &c.

"Such a work, well understood by miners, would do more to prevent colliery accidents than an army of inspectors."—*Colliery Guardian.*
"The book cannot fail to be well received by all connected with collieries."—*Mining Journal.*
"Its contents are really valuable to the miners of this country."—*Miner's Conference.*
"I have works priced at £4 that do not contain the same information."—W. W. KENRICK, Colliery Viewer.
"The work is replete on the subject of underground management."—M. BANKES, Colliery Proprietor.
"I have had twenty years' management. It is the best work I ever read, and deserves to be circulated in every colliery district."—JOSEPH EAMES.

WESTERN & CO.,
Sole Agents for the United States.

For sale at the office of the AMERICAN JOURNAL OF MINING, 37 Park Row, New York, and through any Bookseller. Price, $1.

NOTICE.
A SUPERINTENDENT OF MINES AND MINING WORKS, who has had long experience as a Civil Mining and Mechanical Engineer, in many parts of America, will receive proposals for an ENGAGEMENT. Will cite satisfactory References in New York City and elsewhere. Connexion with Coal or Iron Works preferred in New York, Pennsylvania, or New Jersey, and heavy, responsible charge desired.
Address PROF. H. DUSSAUCE,
Industrial Laboratory,
New Lebanon, Columbia Co., N. Y.

"THE MANUFACTURER AND BUILDER."

A Practical Journal of Industrial Progress.

Published Monthly.

Every Manufacturer and Builder should have it.
Every Operative and Mechanic should have it.
Every Architect and Mason should have it.
Every Painter and Plumber should have it.
Every Carpenter and Blacksmith should have it.
Every Reading-room and Library should have it.

PRICE WITHIN THE REACH OF ALL.

Subscription only $1.50 per year.

4 Copies, $5; 10 Copies, $12; 15 Copies, $16.

CLUBS OF MORE THAN TWENTY, $1.00 PER YEAR.

32 Large Quarto Pages for 15c.

384 Large Quarto Pages for $1.50.

Filled with Valuable Reading Matter,

It Costs Less Than Three Cents per Week.

A SINGLE HINT IN THIS PAPER MAY BE

WORTH HUNDREDS OF DOLLARS,

OR PROVE A FORTUNE TO MANY.

"THE MANUFACTURER AND BUILDER"

Is Splendidly Illustrated with Engravings of Everything New

RELATIVE TO MANUFACTURING AND BUILDING.

Get Your Clubs Together.

PREMIUMS.

We are induced to offer the following CASH PREMIUMS to those who will work to get up these clubs! $5.00, $10.00, $15.00, $20.00 made in as many minutes! READ! READ! READ!

For every Club of 25 names, at $1.00 each,	$2.50 cash.	For every Club of 75 names, at $1.00 each,	$7.50 cash
" " 30 names, at $1.00 each,	$3.00 cash.	" " 150 names, at $1.00 each,	$15.00 cash
" " 50 names, at $1.00 each,	$5.00 cash.	" " 200 names, at $1.00 each,	$20.00 cash

Where from fifty to five hundred men congregate daily, there is no difficulty in raising these clubs. If the money be forwarded to us with a list of names, the amount of premium may be deducted from the same.

PUSH THE GOOD WORK, and make glad the hearts of your fellow-workmen.

HOW TO GET UP CLUBS.

If you are employed in a FACTORY, SHIP-YARD, MACHINE-SHOP, FOUNDERY, or MANUFACTURING ESTABLISHMENT—

1st. Send to our office and get a Specimen Copy, Free, with Circulars setting forth the objects of the paper.

2d. At the end of the circular you will find room to write a notice that you will meet your fellow-workmen on the morrow, at noon-time, to take their names as subscribers. They will thank you kindly for the trouble you have taken, and your employer will readily grant the privilege.

3d. Send on the list of names, endorsed as correct by the firm, and to our address, and we will arrange with the concern by whom you are employed for the payment of the bill on the next pay-day.

CLUBS IN VILLAGES AND TOWNS

May be procured by any enterprising man or woman. Send for Specimen Copy, Free. Take it and go among your friends and neighbors. In a half day you will often accomplish the task, and **5, 10 or 15 Dollars** will be earned, together with the satisfaction of knowing that you have benefited your fellow-men.

Address your orders plainly:

WESTERN & COMPANY, Publishers,

P. O. Box, 5969. **37 Park Row, New York.**

AMERICAN NEWS COMPANY, 119 and 121 Nassau Street, New York, } Dealers' Agents.

R. HOE & CO.,

MANUFACTURERS OF WARRANTED

EXTRA CAST STEEL SAWS,

OF EVERY DESCRIPTION.

Single and Double Cylinder and Type Revolving

PRINTING MACHINES.

Circular Saws with Movable or Inserted Teeth.

The accompanying engraving represents a new and improved Circular Saw with inserted teeth, manufactured by us, and constructed on a plan in which is combined a mechanical arrangement embracing all the requirements of inserted teeth without an objectionable feature.

These saws possess great advantages over all others. The teeth are grooved all around and comprise considerably more than half a circle; consequently when they are turned into the sockets they become as firmly fixed as if they were a part of the plate itself. These saws can be run at any speed desired, and there is no possibility of the teeth being thrown out of their sockets from any cause. There are no rivets required. In these and other respects they have an advantage over all other inserted tooth saws manufactured.

Circulars and price lists will be sent on application.

R. HOE & Co.,

May9-1y **31 Gold Street, New York.**

ADVERTISEMENTS.

☞ Advertisements will be admitted on this page at the rate of 40 cents per line. No extra charge for cuts.

The AMERICAN JOURNAL OF MINING has a larger circulation than any other paper of the kind published in the United States. It goes into the principal cities and towns of every State and Territory in the American Union, as well as in Mexico, the South American States, the West India Islands and Europe.

E. S. JOHNSON & CO.'S

GOLD PENS.

E. S. Johnson & Co.'s Gold Pens.

Gold, Ivory, Pearl, and Rubber Pen and Pencils, at prices that defy competition. Send for circular giving exact sizes and prices. All goods warranted. Repointing at 50c. each by mail. Manufactory 15 Maiden Lane.

E. S. JOHNSON & CO.,

jan9-os-tf 44 Nassau st., New York City.

E. S. JOHNSON & CO.'S

GOLD PENS.

FARMER'S

Patent Blower, Exhauster & Pump,

INTENDED FOR FOUNDRIES,

Forges, Steamboats, Gas & Water Works.

Address, for purchase of Right,

WILLIAM FARMER,

MANHATTAN GAS WORKS,

jan16 os-3m 18th street Station, New York.

P. H. VAN DER WEYDE, M. D.,

Professor of Chemistry and Metallurgy,

N. Y. DENTAL COLLEGE,

(Late Professor of the N. Y. Medical College, of Mechanics, etc., at the Cooper Institute, and of Industrial Science at the Girard College, Philadelphia.)

ANALYTICAL and CONSULTING CHEMIST AND ENGINEER.

RESIDENCE—73 Seventh street.
LABORATORY—Twenty-third street corner of Sixth avenue.
OFFICE—37 Park ow, New York City.
jan30-tf-os

STEAM ENGINES

FROM 4 TO 200 HORSE POWER—Including CORLISS PATENT CUT OF ENGINES, SLIDE VALVE STATIONARY ENGINES, and PORTABLE ENGINES. Also, IMPROVED CIRCULAR SAW MILLS, ETC.

Send for Descriptive Circular and Price List.

WOOD & MANN Steam Engine Co.

UTICA, N. Y

Ware Rooms, 89 Liberty Street, New York, and 201 and 203 South Water Street, Chicago, Ill. Nov7-ly-os

NEW YORK BELTING AND PACKING COMPANY.

The oldest and largest manufacturers in the United States of

VULCANIZED RUBBER FABRICS,

ADAPTED TO MECHANICAL PURPOSES,

invite the attention of all who are interested in the sale or use of such articles to the high standard quality and low prices of their various manufactures, comprising

MACHINE BELTING,
STEAM PACKING,
LEADING HOSE,
SUCTION HOSE,
CAR SPRINGS,
WAGON SPRINGS,
BILLIARD CUSHIONS,
GRAIN DRILL TUBES,
ETC., ETC.

"TEST" HOSE

made expressly for the use of Steam Fire-Engines, and will stand a pressure of 400 pounds per square inch. Officers of Fire Departments, requiring New Hose, will find this much superior in strength and quality to any other.

PATENT SOLID EMERY VULCANITE WHEELS.

A composition of rubber and emery, making a very hard uniform substance of the nature of stone throughout. These wheels for grinding and polishing metals, "gumming" saws, etc., are the most economical and effective tools that can be used.

Warehouse, 37 & 38 Park Row, N. Y.

JOHN H. CHEEVER, Treasurer.

☞ Price-lists and further information may be obtained by mail or otherwise on application. oct30-1yos

THE

Shaw & Justice Power Hammer.

These Hammers, illustrated on page 129, have been in use for the past two years on all kinds of work, and in all parts of the country, and are the most economical and durable in the market. Suitable for all kinds of forging, either plain or dye work. For prices and information where Hammers can be seen, address PHILIP S. JUSTICE, 42 Cliff Street N. Y., and 14 North Fifth Street, Philadelphia. sept5:6mos

THE

Tanite Emery Wheel

Cuts fast, and does not glaze, gum or heat.

For circulars address

THE TANITE CO.,

Feb.13-4t.o.s. Stroudsburgh, Pa.

B. F. STURTEVANT'S

NEW PATENT IMPROVED

FAN

AND

PRESSURE BLOWERS

MANUFACTORY & SALESROOM

72 SUDBURY ST. BOSTON.

Feb13.1yr.o.s.

ADELBERG & RAYMOND,

Mining Engineers & Metallurgists,

93 BROADWAY, N. Y.

Mines, Mineral Lands, Machinery and Metallurgical or Chemical Works examined and reported upon. Advice given to miners, chemists and manufacturers. Assays and analyses made. Competent Engineers furnished to companies or individuals.

WIRE ROPE

MANUFACTURED BY

JOHN A. ROEBLING.

TRENTON, N. J.

FOR

INCLINED PLANES, MINING,
STANDING SHIP RIGGING,
SUSPENSION BRIDGES, FERRIES.
STAYS AND GUYS ON BRIDGES,
CRANES & SHEARS, DERRICKS,
TILLERS, &C.

A large stock of wire rope constantly on hand. Orders filled with despatch.

☞ For strength, size and cost see circular, which will be sent on application, nov3:tf

JOHN F. WERNER,

Model Maker and Machinist,

Corner of Centre and Franklin Streets, New York. Particular attention given to Working Models, Small Machinery. Tools made to order. Also, Gear Cutting.

Aug 22-1yos

"CARBON."

A large assortment of Carbon of all sizes and shapes, suitable for Miners and all Mechanical purposes, always on hand and for sale by JOHN DICKINSON, 64 Nassau street, New York. feb6-4t-os

WASHBURNE'S Developing Clubs.

19 COURTLANDT STREET, New York City.

Send for Illustrated Circular. oct24-3m

The Place to Buy Your Skates.

THE PLACE TO BUY YOUR SKATES.

EXCELSIOR MANUFACTURING CO.,

205 & 207 East 22d Street, New York.

dec5-3m-os

MATHEMATICAL INSTRUMENTS FOR

Mechanical and Architectural Drawing.

DIVIDERS, BOW PENS, TRIANGLES, T SQUARES, SCALES, ETC., ETC.

T. H. McALLISTER, Optician.

Aug 22-6m-eow 49 Nassau street, New York.

AMERICAN PHOTO-LITHOGRAPHIC COMPANY'S Office, Herald Building, Broadway, Room 19.

sept 12-tf-os